A STUDY TO ASSESS THE AWARENESS ON MANAGEMENT OF HYPOGLYCEMIA AMONG DIABETIC CLIENTS IN PSG HOSPITALS, COIMBATORE IN VIEW OF PREPARING AN INFORMATION BOOKLET

By

PRAMEELA .A

A dissertation submitted to **TheTamil Nadu Dr. MGR Medical University,**
Chennai, in partial fulfillment of requirement of the degree of

Master of Science in Nursing

Branch I Medical Surgical Nursing

2016

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2016

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"Give thanks to the lord for he has done marvelous things in my life"

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S. No	ABBREVIATIONS
1	DM – Diabetes Mellitus
2	DCCT – Diabetes control and complication trial
3	IDF – International Diabetes Federation
4	WHO – World Health Organization
5	DARTS – Disabled Audit and Research in Tayside studies
6	IHEC – Institutional Human Ethics Committee

ABSTRACT

A study to assess the awareness on management of hypoglycaemia among diabetic clients in PSG hospitals, Coimbatore in view of preparing an information booklet.

Introduction:Diabetes Mellitus (DM) is a major health problem in the world. Diabetes mellitus describes a metabolic disorder of multiple etiologies characterized by chronic hypoglycemia with disturbances of carbohydrate, fat and protein metabolism.Hyperglycemia is an increase in blood glucose level. Hypoglycemia is a lower than normal level of blood glucose.Creating awareness on signs and symptoms among diabetic clients may reduce the complications.

Objectives:1.Assess the knowledge of diabetic clients regarding management of hypoglycemia.2.Find the association between the knowledge of diabetic clients on management of hypoglycemia and their selected demographic variable.

Research Methodology: Descriptive survey design wasadopted by selecting 60 samples using purposive sampling technique.

Major Findings of the Study: Out of 60 samples, majority of the samples 32(53.4%) were male and only 28(46.6%) of the samples were female. Most of the samples 23(38.33%) belongs age group between 31-40years. More than half of the samples, 40(66.66%) were using hypoglycemic agents. 33(55%) were taking medication once a day. 18 ((30%) samples were having the history of hypoglycemic symptoms. Whereas, 7(11.66%) ofthem were not sure about the hypoglycemic symptoms. Only 24(40%) of them were aware about the self-management of hypoglycemia. The study highlights that the diabetes mellitus clients 13(21.6%) were having adequate knowledge, 39(65%) were havingmoderately adequate knowledge and 8(13.3%) had inadequate knowledge on management of hypoglycemia.

Conclusion: The study findings revealed that, diabetic patients had moderately adequate knowledge regarding awareness on hypoglycemia. So the diabetic patients should be aware on management of hypoglycemia by using information booklet which enhance the patients knowledge to manage the hypoglycemia and prevent further complications.

Key words:Diabetes mellitus, Hypoglycemia,Management,Awareness,Information booklet.

CHAPTER-I

INTRODUCTION

"Wounds that don't heal, Nerves that don't feel, No food I can eat at ease, what a disease I have –Diabetes.''.....

1.1 Background of the study

Diabetes Mellitus (DM) is a major health problem in the world. It is one of the most prevalent metabolic diseases which can lead to enormous medical as well as socio-economic consequences (**Wendell, et al., 1997**). Diabetes mellitus describes a metabolic disorder of multiple etiologies characterized by chronic hypoglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action or both. The effects of diabetes mellitus include long-term damage, dysfunction and failure of various organs. Diabetes mellitus may present with characteristic symptoms such as thirst, polyuria, blurring of vision, and weight loss. In its most severe forms, ketoacidosis or a non-ketotic hyperosmolar state may develop and lead to stupor and coma. The long-term effects of diabetes mellitus include progressive development of the specific complications of retinopathy with potential blindness, nephropathy that may lead to renal failure and neuropathy with risk of foot ulcers, amputation, Charcot joints, and features of autonomic dysfunction, including sexual dysfunction. Two aspects of diabetes mellitus are hyperglycemia and hypoglycemia. Hyperglycemia is an increase in blood glucose level. Hypoglycemia is a lower than normal level of blood glucose. It can be defined as "mild" if episode is self-treated; "moderate" if assisted and "severe" if hospitalized and assisted by a physician (**DCCT, 1993**)

Diabetes Mellitus is currently the fastest growing debilitating disease in the world. It is estimated that one out of five people aged 20 to 79 lives with this disease, while a similar percentage of the population is at risk of developing it (**IDF, 2007**). It was the 16th leading cause of global mortality in 2014. Recent studies of geographical and ethnical influences have shown that people of Indian origin are highly prone to diabetes. The number of adults suffering from diabetes in India is expected to increase three fold from

19.4 million in 2005 to 57.2 million in 2025. Diabetes is rapidly gaining the status of potential epidemic in India around 65 million people are currently being affected by it and by 2050, India's diabetes numbers are expected to cross the 100 million mark and it is increasing to nearly 2 million in a year (**Public health foundation of India, 2016**).

Globally in 2013, it is estimated that almost 382 million people suffer from diabetes. Hypoglycemia is a true medical emergency, which requires prompt recognition and treatment to prevent organ and brain damage. The spectrum of symptoms depended on duration and severity of hypoglycemia and varied from autonomic activation to behavioral changes to altered cognitive function to seizures or coma. The short and long-term complications include neurologic damage, trauma, cardiovascular events and death. Severe untreated hypoglycemia can cause a significant economic and personal burden (**SoujanyaAkkineni, 2014**)

Hypoglycemia can be a major barrier to optimal glycemic control. Glycemic control can be inhibited by iatrogenic hypoglycemia and leads to:

- Recurrent morbidity in most people with type 1 diabetes mellitus and advanced type 2 diabetes mellitus
- Compromise in physiological and behavioral defenses against hypoglycemia leading to recurrent episodes of hyperglycemia
- Hindrance for the maintenance of euglycemia.

1.2 Need for the study

According to the World Health Organization (**WHO, Jan 2016**) report, India today heads the world with over 32 million diabetic patients and this number is projected to increase to 79.4 million by the year 2030. Recent surveys indicate that diabetes now affects a staggering 10-16% of urban population and (5-8%) of rural population in India. There is very little data on the level of awareness and prevalence about diabetes in developing countries like India. Such data is important to plan the public health program.

The increasing prevalence of diabetes is a worldwide problem. The World Health Organization estimates that more than 180 million people have diabetes across the world

and this figure is likely to double by 2030. A prevalent rate of 1.67 was seen in 1971. This level increased to 5.49 in 1978. Ten years later in 1988 the rate increased by 1.56 giving a value of 8.6.A further increase to 13.8 was observed in 1998 and currently the 2008 statistics indicates the prevalence rate of 18.03. This rate is 3.3 times the rate 30 years ago.

The condition called hypoglycemia is literally translated as low blood sugar. Hypoglycemia occurs when blood sugar (or blood glucose) concentrations fall below a level necessary to properly support the body's need for energy and stability throughout its cells.

Apart from directly leading to death, one of the indirect hazards of hypoglycemia is that it may endanger the life of a diabetic and other people, during activities like driving, swimming and walking. Hypoglycemia can also lead to (e.g dizziness, palpitation, sweating, nausea and vomiting, lack of concentration, visual impairment, abdominal discomfort, tremor, intense, hunger, speech disabilities) and hence proper management should be given at proper time. For this reason clients knowledge and perception of hypoglycemic symptoms needs to be assessed (**Saadi, et al., 2007**).

Diabetes has emerged as one of the world's biggest health problems and its prevalence is increasing at an alarming rate. People with diabetes who want to live their lives without limits will need to know a lot about their illness. Comprehensive patient education is required to provide the patient with self-management skills necessary to achieve good glycemic control. Epidemiologic data indicate the large numbers of clients do not receive the proper care or education necessary to develop such management abilities (**Giorda et al., 2014**).

Diabetes is difficult. It imposes lifelong demands and people with diabetes and their families, who have to make a multitude of decisions related to managing diabetes. People with diabetes need to monitor their blood glucose, taking medication, exercise regularly and adjust their eating habits. Furthermore they may have to face issues related to living with complications of diabetes and may need to make considerable psychological adjustments (**Balfe & Jackson, 2007**).

The need to develop teaching or health education practice activities for diabetic clients and their families associated with the prevention of complications through self-management of the disease, which permits patient to live with it better (**Suleiman, et al., 2009**).

Hypoglycemia may increase the vascular events even death in addition to other possible detrimental effects. Glycemic control should be individualized based on patient characteristics with some degree of safety. Recognition of hypoglycemia risk factors, blood glucose monitoring, selection of appropriate regimens and educational programs for healthcare professionals and patients with diabetes are the major issues to maintain good glycemic control, minimize the risk of hypoglycemia, and prevent long-term complications (**Mohammad Pajouhi, et al., 2012**).

Nurses roles in balancing glycemic control for preventing hypoglycemia is by providing optimum care for diabetes clients, such as recognizing precipitating factors or triggering events, ordering appropriate scheduled insulin or anti-diabetic oral agents, monitoring blood glucose at the bedside, educating patients, family, friends, and staff about symptom recognition and appropriate treatment and providing appropriate nutritional requirements.

Nurse researcher observedthe diabetes mellitus clients whether they had enough guidance and education regarding the awareness on management of hypoglycemia and able to identify their knowledge on management.

Intangible costs (pain, anxiety, inconvenience and generally lower quality of life etc.) also have great impact on the lives of patients and their families and are the most difficult to quantify. It is believed that patient's knowledge of self-care is the key to achieving therapeutic goals in ambulatory care.

With this above aspect and background the current study was planned to promote the awareness on management of hypoglycemia among diabetic clients.

1.3 Statement of the problem:

A study to assess the awareness on management of hypoglycaemia among diabetic clients in PSG hospitals, Coimbatore in view of preparing an information booklet.

1.4 Specific objectives:

1. Assess the knowledge of diabetic clients regarding management of hypoglycemia.
2. Find the association between the knowledge of diabetic clients on management of hypoglycemia and their selected demographic variable.

1.5 Operational definitions:

Assess: In this study, it refers to measurement of the level of knowledge of diabetic clients about the management of hypoglycemia by using structured questionnaire.

Awareness: In this study, it refers to state of being informed about the management of hypoglycemia and its related symptoms such as, dizziness, palpitation, sweating, nausea, vomiting and lack of concentration etc.

Management of Hypoglycemia: In this study, it refers to measures taken by diabetic clients at home to prevent hypoglycemia related complications when blood glucose concentration falls below 70mg/dl.

Diabetes clients: In this study, it refers to the clients who are having the high blood glucose level above 200mg/dl.

1.6 Assumptions:

- Diabetic clients will have lack of knowledge on management of hypoglycemia.
- Hypoglycemia is a complication of diabetes mellitus.
- Hypoglycemia can result in unconsciousness.
- Hypoglycemia is fatal.
- Imparting knowledgeon the management of hypoglycemia will prevent complications.

1.7 Hypothesis:

H_1: There will be a significant association between the level of knowledge of diabetic clients on management of hypoglycemia and their selected demographic variable.

1.8 Projected outcome: Identifying the knowledge regarding hypoglycemia on diabetic clients will enhance the patients to reduce the complication.

1.9 Conceptual framework:

Modified Pender's Health Promotion Model:

Pender's health promotion model was developed by Dr. Nola Pender that is used universally for research education and practice. The health promotion model focuses on helping people achieve higher level of well-being. It encourages the health professionals to provide positive resources and help patients to achieve behaviour and specific changes. This model describes the multi- dimensional talent of persons as they interact within the environment. It is directed at increasing the health promoting behavior. Health promoting behavior should result in enhanced functional ability of the nurses which will lead to improved health promoting actions.

The goal of health promotion model is not just about helping patients prevent illness through their behaviour but to look at ways in which a person can pursue better health or the ideal health.

The major concepts of the health promotion model

- Individual characteristics and experiences.
- Health promotional behaviour.

Individual characteristics and experiences:

The person has unique personal characteristics and experiences that affect subsequent actions.

In this study, it includes the diabetes mellitus client's personal factors such as age, gender,religion, educational status, use of natural herbal medications and source of information.

Health promotional behaviour:

Health promotion behaviour emphasized asendpoint or action outcome directed toward attaining positive health outcome such as optimal well-being, personal fulfillment, and productive living.

In this study, it includes of engaging in awareness on management of hypoglycemia among diabetic clients regarding Meaning and causes of hypoglycemia, Risk factors for hypoglycemia, Signs and symptoms of hypoglycemia, Management of Hypoglycemia and Complications of hypoglycemia

Health professionals such as nurses and doctors comprise the interpersonal environment which influences the individual behaviour.

The health promotion notes that each person has unique personal characteristics and experiences that affect subsequent actions based on the behaviour. These variables can be modified through nursing actions such as educating regarding the ill effects of hypoglycemia. Health promoting behaviour should result in improved health, enhanced functional ability, better quality of life and it will reduce all other consequences related to hypoglycemia. So the information booklet can be used further to disseminate the knowledge regarding hypoglycemia.

This model emphasizes health promotion behaviours regarding personal factors with increased efficacy and perception reforming and strengthening behaviours that improve communication and situation. Therefore this model which is potentially used during especially hypoglycemic patients nurses believe that identifying and providing applicable solutions in order to provide health improvement on reducing hypoglycemic symptoms based on this model the researcher had used the model to prevent hypoglycemia on diabetic mellitus clients.

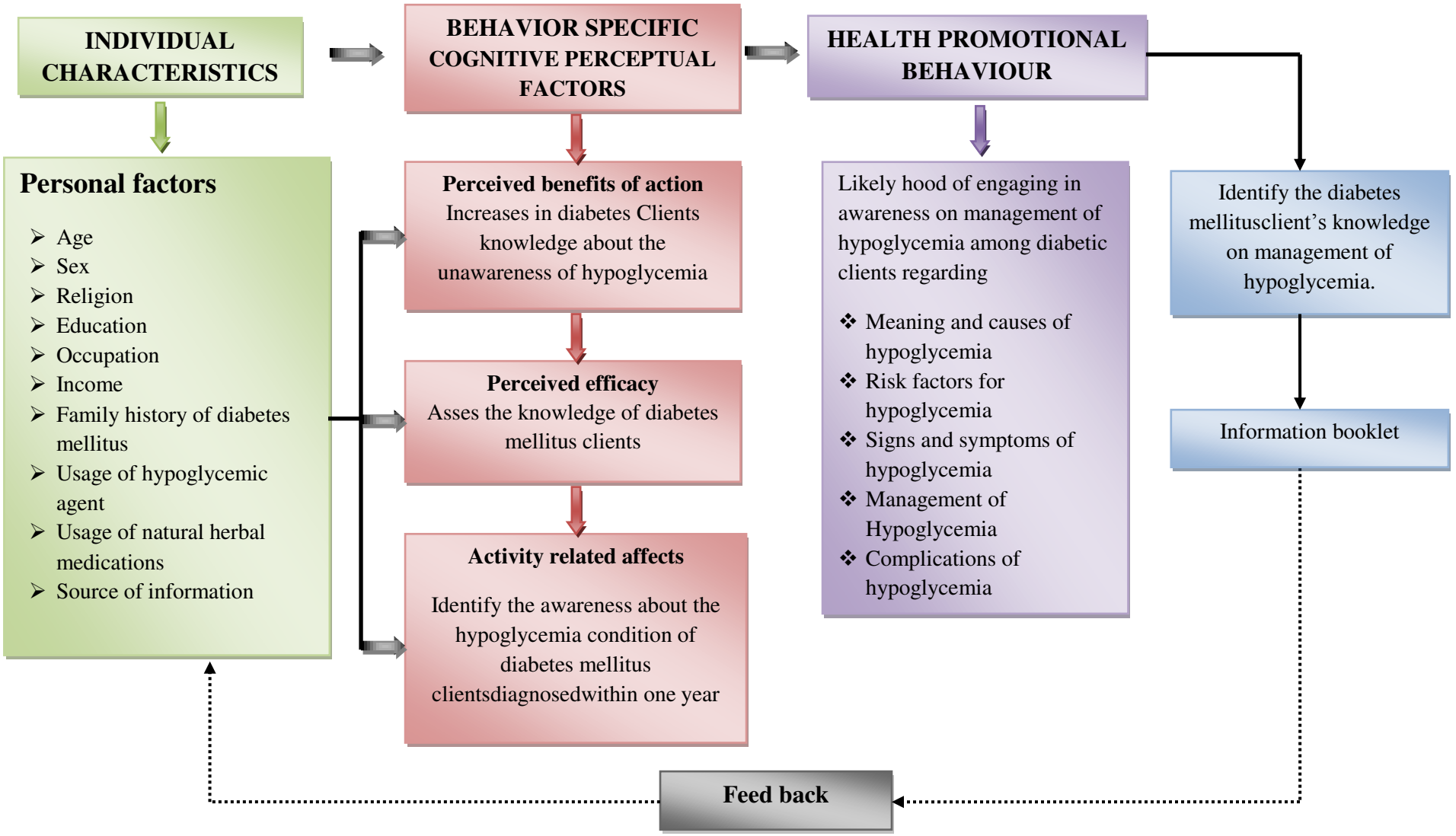

Figure 1.1: Conceptual frame work based on modified Pender's health promotion model

Not included in the study
Included in the study

CHAPTER-II

REVIEW OF LITERATURE

A literature review is a "critical analysis of a segment of a published body of knowledge through summary, classification and comparison of prior research studies, reviewof literature, and theoretical articles''

A Literature review is a critical summary of research on a topic of interest often prepared to put a research problem in context. A literature review helps to lay the foundation for a study and can also inspire new research ideas.

A systematic review of literature and appraisal of all the relevant scholarly literature on the specific topic involves an in depth study. An extensive review of literature was done on the related research and non-research literature.

Literatures related to various aspects of the study as follows:

2.1 Literature related to diabetes mellitus.

2.2Literature related to prevalence and awareness of hypoglycemia.

2.3Literature regarding knowledge and attitude of hypoglycemia.

2.1 Literature related to diabetes mellitus:

A concluded from studies that severe hypoglycemia occurs in 35-42% of Type 1 diabetes mellitus patients and the rate of severe hypoglycemia is between 90-130 episodes/100 patient years. The Hypoglycemia Study found that patients with longer duration of diabetes (>15 years) experienced higher rates of severe hypoglycemia than those with smaller duration (>5 years) (46% vs. 22%). The study also reported increased rates of hypoglycemia in those with longer duration of insulin treatment. A retrospective questionnaire based study from Denmark in insulin treated type 2 diabetes patients reported at least one episode of severe hypoglycemia in 16.5% of patients with an incidence of 44 episodes/100 patient years. Similarly, data from the Diabetes Audit and Research in

TaysideStudy (DARTS) study indicated that the severe hypoglycemia was 7.1% in patients with type 1 diabetes mellitus and 7.3% in patients with type 2 diabetesmellitus treated with insulin, compared with 0.8% in patients with type 2 diabetes mellitus treated with an oral sulfonylurea. Moreover, hypoglycemic events, especially severe episodes, lead to a substantial increase in the direct and indirect costs of medical care. The purpose of this review is to discuss the importance of hypoglycemia in the management of patients with diabetes mellitus, with an aim to improve understanding of the risk factors, impact and consequences of hypoglycemia. While recent progress related to prevention of hypoglycemia including patient education strategies and the use of newer therapeutic agents with a lower risk for hypoglycemia aim at achieving and maintaining optimal glycemic control, hypoglycemia still remains a major challenge which needs to be addressed for better management and treatment of patients with diabetes. (**Shehla Shaik Sanjay Kalra, et al., 2013)**

A study conducted on fear of hypoglycemia implications for diabetes management and patient education. Three hundred and one abstracts were reviewed and 273 were rejected on the basis of non-relevance.There is evidence that blood glucose (BG) awareness training can reduce levels of fear and improve disease management. (**Diane Wild , et al., 2007)**

2.2 Literature related to prevalence and awareness of hypoglycemia:

Theprospective-observational comparative study carried out for a period of 6 months in the outpatient unit of endocrinology and general medicine departmentin Subham Hospital, Mansur, MP India. Patients who had hypoglycemic episodes were classified into mild, moderate and severe hypoglycemia with respective to age, anti-diabetic therapy and co-morbidities. Prevalence of hypoglycemia was calculated using prevalence formula; hypoglycemic episodes for anti-diabetictherapy were compared using ANOVA and independent t-test. Out of 200 patients, (43%) were male and (57%) were female patients. Patients with systemic hypertension (30%) were more predominant than other co-morbid conditions. According to anti-diabetic therapy (49.5%) patients were on oral hypoglycemic agents, (16.5%) were on insulin and (34.5%) on both insulin and oral hypoglycemic agents.

The calculated value of' (2.831) was greater than table value (2.45) and mean of oral hypoglycemic agents (24.75) was greater than the mean of insulin (8.25). Prevalence of hypoglycemia was (51%).The results from this study showed that more number of patients taking oral hypoglycemic agents was found to experience hypoglycemia and patients with systemic hypertension as co-morbid condition were found to experience hypoglycemia than other co-morbid conditions. Prevalence of hypoglycemia was found to be more among females and elderly population (**Gadepalli Apuroopa, et al., 2014**).

Adescriptive survey to evaluate the effect of structured teaching programme to promote the awareness of diabetes and the programme was conducted for about two weeks aimed at improving overall treatment quality through self-care, diet, exercise and weight reduction. 5-8 groups were participated and each group contains 10 members. The results strongly suggested that education improve the awareness level among 92% of participants in the group. (**Wing-Sheung Chan Lisa Manuel**, **2010)**

Asurvey study in Shayadrai hospitals, Mumbai regarding the awareness of inadequate glycemic control on oral hypoglycemic agents. 50 participants were selected and self-structured questionnaire was filled by them. Questionnaire includes their diet pattern, signs and symptoms, exercise and itscomplication. The study concluded that there was a significant difference in level of education and awareness to the people and 65% of them having more adequate knowledge regarding diabetes. **(Maria Chiara Rossi et al., 2013)**

A study onimpaired hypoglycemia awareness and employment in people with Type1 diabetesmellitus. A randomly selected cohort of adults of employment age with Type 1 diabetes completed a questionnaire detailing the history of their diabetes. This study was first to demonstrate that those with Type 1 diabetes mellitus and insulin associated hypoglycemia remain as economically active as those with normal awareness of hypoglycemia, although subjects with insulin associated hypoglycemia were significantly more likely to feel that having diabetes had adversely affected their capacity for employment. (**O.O.Ogundipe, et al., 2014)**

A study on prevalence of impaired awareness of hypoglycemia in adults with Type 1 diabetes mellitus. Five hundred and eighteen people with Type 1 diabetes mellitus were

recruited by random selection over a 2-year period. Survey of a large hospital-based clinic population has confirmed that a significant proportion of people with Type 1 diabetes mellitus (19.5%) continue to have impaired awareness of hypoglycemia. Despite improvements in insulin therapies, intensification of insulin regimens and innovative patient education, the prevalence of impaired awareness of hypoglycemia remains high in type 1 diabetes mellitus. (**J. Geddes, J. et al., 2013)**

2.3 Literature regarding knowledge and attitude of hypoglycemia:

A study in Aga khan University Hospital, Karachi., with structured questionnaire on knowledge, belief and practices regarding diabetes on 199 subjects with diabetes (92.5% type 2 DM), attending the OPD.Mean age was 53, Mean duration of diabetes was 7 years in men and 6 years in women. Men had a significantly better knowledge score than women (p= 0.02), there was no significant difference in the beliefs and practices scores. (**Jonin.N.Mohammad et al., 2010)**.

The cross sectional study on the relationship between diabetes knowledge and compliance among women diabetes patients. The data was collected through self structured interviews based on validated scales, assessing diabetes knowledge, and demographic data. 100 samples were selected based on the random sampling technique. The findings indicated that there was no association between knowledge and education. Nearly 70% strategies were suggestedto bridge the gap between knowledge and practice and increase patient's motivation ability to comply with health regimen. (**Joyce J. Fitzpatrick, 2009)**

An exploratory study was conducted to assess the knowledge and practice of semi urban population regarding diabetes among 563 adult residents using interview and questionnaire method. Only 29.5% identified physical inactivity, obesity and positive family history for diabetes a higher level of education a higher house hold income and presence of family history found to be positively associated with more knowledge. Study suggested that the level of education is the most significant predictor of knowledge regarding risk factors, complication and prevention of diabetes. (**Souraya Sidani et al., 2011)**

A study on 100 patients, to assess the knowledge and attitude on self-care activities by using interview schedule and likert scale the result showed that 48% of the patients had inadequate knowledge, 35% of the patients had moderately adequate knowledge, 17% of the patients had adequate knowledge. Regarding the attitude 75% of the patients had undesirable attitude, 16% of the patients had desirable attitude and 12% of the patients had most desirable attitude on diabetes. The researcher concluded that most of the patients were having inadequate knowledge and attitude about diabetes. (**Kelli Cristina Silva de Oliveira, 2010**)

A descriptive study in Africa to assess the knowledge, perception, risk factor awareness and prevention practices among African American and Hispanic families with a history of diabetes.Interviews were conducted with 50 adolescents. Open ended question was given to assess the knowledge results shows that majority of them were over - weight nearly half of them have adequate knowledge on diabetes. Seventy four percentage of them correctly identified family history as a risk factor 26% of them identified over weight as a cause for diabetes. (**Patel M, et al., 2014)**

A survey study in 200 bedded hospitals at Karachi to assess the knowledge among 100 patients attending a diabetes care unit. Data regarding patient characteristics, knowledge and attitude were collected through questionnaire most of them were overweight and only 11% of them have glycemic control, 67% of them were not performing any kind of exercise and 54% of them have poor knowledge on diabetes. (**Mohammad Ansari .H, 2011**).

Chapter summary:

Literature related to awareness of hypoglycemia, literature regarding knowledge of hypoglycemia, literature regarding diabetes helped to identify the objectives of the study. The study laid the foundation for the present study. Which briefly describes procedure protocol, selection criteria and method of analysis. The studies which included survey study, comparison study and observational study were reviewed deeply for the present study. These reviews gave an idea on hypoglycemia. In conclusion, current literatures suggested regarding the knowledge, attitude, risk factors and management of hypoglycemia.

CHAPTER-III

MATERIALS AND METHODS

"Constant attention by a goodnurse may be just as important as a major operation done by a surgeon"

Research design is the frame work for addressing a research question including strategies for enhancing the studies integrity (polite, 2008). The present study was designed to find out to assess the awareness on management of hypoglycemia among diabetic clients. The study was conducted by adopting the steps of research process such as research design, setting, population and sampling criteria for selection of samples instruments and tool for data collection, pilot study report and changes made after pilot study.

3.1 Research Approach and Design:

Descriptive survey design: Survey approach was used to achieve the objective of the study. Descriptive design was selected to assess the awareness on management of hypoglycemia among diabetic clients.

3.2 Setting of the study

The study setting was at PSG hospitals, Peelamedu, Coimbatore. The hospital is a multi-specialty hospital and research center with bed strength of 1300 which caters patients from various parts of the country. This present study was conducted in medicine and endocrinology OPD in PSG Hospitals, Peelamedu, Coimbatore.

Medicine OPD consists of 6 units. In charge of each unit is concerned unit HOD'S. Each unit has personnel's such as duty post graduates, CRRIS, two diabetic educators and one nursing assistant. Around 150 patients are seen by each unit doctors every day.

Endocrinology OPD consists of 2units.Incharge of each unit is concerned unit HOD'S.Each unit has personnel's such as duty residents, two diabetic educators and one nursing assistant. Around 70 patients are seen by each unit doctors every day.

Newlydiagnosed patients per day was 12-20 patients and newly diagnosed diabetes patients per year was 939 (January 2015-December 2015).

3.3 Population and sampling

The population is composed of patients who are diagnosed as diabetes mellitus within a year and taking treatment at PSG hospitals. Total populationwas selected in endocrinology OPD and medicine OPD.The population of diabetes mellitus patients in OPD was 10 patients per day and 939 patients per year. Samples were selected by using purposive sampling technique.

3.3.1 Sampling technique and sample size

Purposive sampling technique was adopted for thestudy to assess the knowledge on management of hypoglycemia among diabetic clients in PSG hospital.

Allowable error method:-

Sample size was calculated by using, allowable error method. Totalsamples selected were 60 patients, who attend medicine and endocrinology OPD in PSG hospitals Coimbatore.

$$n=\frac{4pq}{l^2}$$

p=mean/total population in a year x 100

Mean=total population/12

l=allowable error =5

q=100-p

Here,Mean = 1400/12=116.6

p=116.6/1400 x 0.0832 x 100

n = 60

Estimated sample size was 60.

3.3.2 Sample selection criteria:

Inclusion Criteria:

- Clients who were diagnosed as diabetes mellitus within one year.
- Both male and female diabetic clients available during the data collection period.
- Diabetic clients who were willing to participate in the study.
- Diabetic clients who could read and understand Tamil or English.

3.4 Instruments and tool for data collection:

Section A: Demographic data:

- It consists of personal information such as age, sex, educational status, occupation, income, religion, family history, duration of diabetes, past history of any natural medicines, received information on hypoglycemia.(ANNEXURE IV)

Section B: Awareness and Management of Hypoglycemia

Questions were related to

Part-A: Hypoglycemia

It includesmeaning of hypoglycemia, fasting blood sugar level, causes, risk factors,earlysymptoms, symptoms of night time hypoglycemia, complication of hypoglycemia. (ANNEXURE IV)

Part-B: Management of hypoglycemia

It includes treatment of mild, moderate, and severe hypoglycemia, short acting form of glucose, self management of hypoglycemia.(ANNEXURE IV).

Part-C: Prevention of hypoglycemia

It includes precaution, effect of weight lifting exercise, prevention of night time and repeated hypoglycemia, exercise beneficial for diabetic patients to avoid hypoglycemia. (ANNEXURE IV)

Interpretation

S.No	Score	Interpretation knowledge
1	0-33 %	Inadequate knowledge
2	34-66%	Moderately adequate knowledge
3	67-100%	Adequate knowledge

3.4.1Validity and Reliability

- Validity of the tool has been determined by expert's opinion from the different fields. The expert's were requested to give their opinion on clarity, appropriateness and suggestions for modifications of the tool.
- Reliability of the tool was identified by using Spilt Half method. The reliability was found to be r=0.90. The tool was found to be reliable and feasible.

3.4.2 Techniques of data collection:

Base line data such as demographic data, medical history, life style factors and dietary factors was collected through questionnaire method.

Steps of intervention:

1. The data was collected for the period of one week.
2. The data was collected by providing the tool to the diabetic clients who are diagnosed as diabetes mellitus within one year.
3. Structured questionnaire was given for assessing their knowledge on hypoglycemia and its management.
4. Information booklet was given to the patients during first followup regarding hypoglycemia and its management, after assessing their knowledge level.

3.4.3 Data collection procedure:

Permission was obtained from the head of the department Endocrinology and medicine OPD as well as from Institutional Human Ethics Committee (IHEC), PSG Institute of Medical Sciences and Research. After getting permission from PSG Hospitals and obtaining ethical clearance certificate, data was collected for a period of six weeks at Endocrinology and medicine OPD, PSG Hospitals. The investigator assessed each clients with diabetic within endocrinology and medicine OPD in PSG hospitals and selected the clients who met the inclusion criteria for the study. The study was explained to samples and consent was obtained. Samples were asked to fill the questions given to them including demographic variables. After assessing the knowledge of awareness on management of hypoglycemia, the information booklet was issued to all the samples during their first followup.

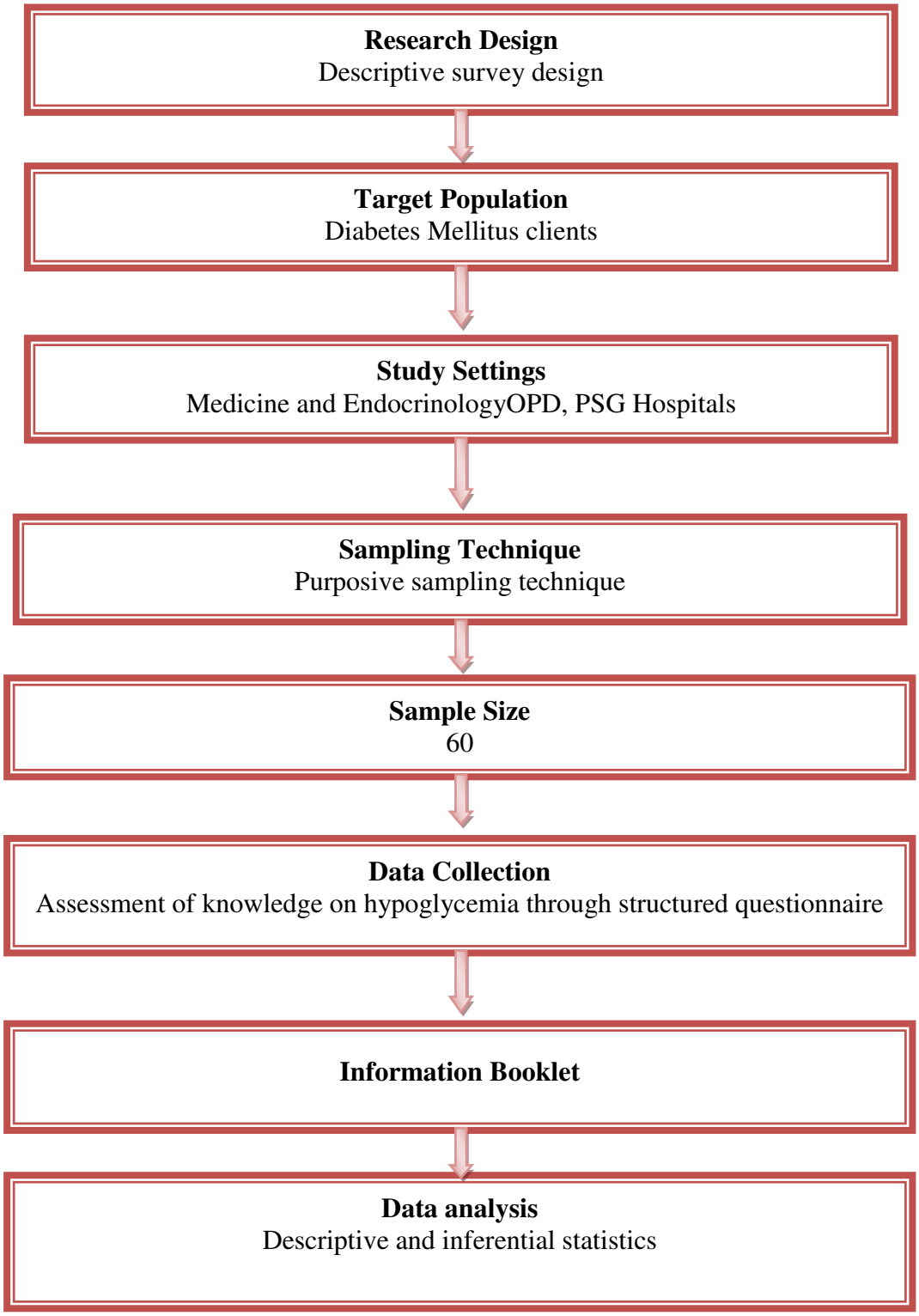

Figure3.1: Schematic representation of Research Methodology

3.4.4 Ethical Approval

The Institutional Human Ethics Committee [IHEC] of PSG Institute of Medical Sciences and Research reviewed the proposal in its full board meeting and approved the study.

3.5 Report of the pilot study

The pilot study was conducted from 31.8.15 to 5.9.15 at Medicine and Endocrinology Outpatient Department of PSG Hospitals.After getting permission, 10 samples was selected. The data was collected and tabulated to find the frequency distribution of diabetic client who are diagnosed with in one year. The tabulated data was used to calculate the mean and standard deviation of the knowledge.

Chi-square test was used to find the association between the selected demographic variables and the level of knowledge regarding awareness on management of hypoglycemia among diabetic clients. There was significant association between the demographic variables and the level of knowledge regarding awareness on management of hypoglycemia among diabetic clients. There was no difficulty faced during the pilot study.

3.5.1 Changes brought after pilot study:

The Changes made after the pilot study was in the demographic variables tool such as the age 21-30 years, family monthly income above Rs.20000 and usage of any herbal medication to control diabetic mellitus was added.

3.6 Data analysis plan:

i. Descriptive statistics:

- The tables have been formulated from their baseline information such as age, gender, education on diabetes.
- Frequency and percentage distribution wasused to analyse the demographic variables.

- Mean and standard deviation wasused to assess the awareness on management of hypoglycemia.

ii. Inferential statistics:

- Chi-square test was used to determine the association between the demographic variables and the knowledge on management of hypoglycemia.

Chapter summary:

This chapter discussed about the material and methodology followed in the present study. The method used was a descriptive survey design. This chapter also dealt with the sample population, sample size, regarding the instruments used and data collection methods. The next chapter will deal on data analysis and interpretation.

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

Data Analysis is a systemic organization including the synthesis of research data and the testing of research hypothesis using those data. Interpretation is the process of making sense of the result and examines their implication (Polit and Beck, 2008). Data analysis is the process which is essential to reduce, organize and give meaning to data and address the research purpose, question and hypothesis.

This chapter deals with analysis and interpretation of data collected from patients through interview and observation to assess the awareness on management of hypoglycemia among diabetic clients. The data was collected from 60 patients on demographic data, medical condition and assessment of hypoglycemia. The data was compiled analysed and then tested for their significance through statistical analysis.

The analysis in this chapter includes:

4. SECTIONS:

1. Frequency and percentage distribution of diabetes mellitus clients with hypoglycemia according to demographic variables
2. Frequency and percentage distribution of diabetes mellitus clients with hypoglycemia according to extraneous variables
3. Frequency and percentage distribution of diabetes mellitus clients based on awareness on management and prevention of hypoglycemia
4. Association of knowledge regarding awareness on management of hypoglycemia among diabetes mellitus clients with selected demographic variables
5. Association of knowledge regarding awareness on management of hypoglycemia among diabetes mellitus clients with selected extraneous variables

Table 4.1: Frequency and percentage distribution of diabetes mellitus clients with hypoglycemia according to demographic variables

n=60

S. No	Demographic Variables	Frequency (f)	Percentage (%)
1	**Gender**		
	Male	32	53.4
	Female	28	46.6
2	**Age**		
	21—30years	6	10
	31-40 Years	23	38.33
	41-50 Years	21	35
	51-60 Years	9	15
	Above 60 years	1	1.66
3	**Educational status**		
	Primary education	24	40
	Secondary education	22	36.66
	Graduate	8	13.33
	Illiterate	6	10
4	**Occupation**		
	Unemployed	9	15
	Self employed	22	36.66
	Private employed	26	43.33
	Government employed	3	5
5	**Income per month**		
	Below ₹5000	2	3.33
	₹5001-₹10000	36	60
	₹10001-₹20000	20	33.33
	₹20000 Above	2	3.33
6	**Religion**		
	Hindu	42	70
	Muslim	8	13.33
	Christian	10	16.66

Above table 4.1 shows among 60 samples, 32(53.4%) samples were female and 28(46.6%) of the samples were male. The samples 23(38.33%) belongs to age group between 31-40years, 21(35%) ofthe samples belongs to the age group between 41-50 years. 9(15%) of the samples belongs to the age group between 51-60 years.6(10%)of the samples belongs to the age group between 21-30 years, 1(1.66%) of the samples belongs to the age group of above 60 years.

On verifying the educational status, 24(40%) of them had undergone primary education, 22(36.66%) were qualified with secondary education, 8(13.33%) were graduates and only 6(10%) were illiterate.

Among 60 samples, 26(43.33%) were private employed, 22(36.66%) were self-employed, 9 (15%) samples were unemployed. Only 3(5%) samples were government employed.

Out of 60 samples more than half of them 36(60%) had a family monthly income between Rs 5001-10000, while 20(33.33%) of them were under the category of Rs. 10001-20000. The rest of the samples 2 (3.33%) were equally shared in the categories of below Rs. 5000 and above Rs.20000.

On verifying the religion of samples, majority of them 42(70%) samples belongs to Hinduism and 10(16.66%) of them belongs to Christianity. Only 8(13.33%) of them belongs to Muslims.

Table 4.2: Frequency and percentage distribution of diabetes mellitus clients with hypoglycemia according to extraneous variables

n = 60

S. No	Extraneous Variables	Frequency (f)	Percentage (%)
7	**Using hypoglycemic agent**		
	Yes	20	33.33
	No	40	66.66
8	**Duration of diabetes mellitus**		
	0-4 months	19	31.66
	5-8 months	12	20
	9-12 months	29	48.33
9	**Treatment for diabetes mellitus**		
	Oral hypoglycemic agent	40	66.66
	Insulin	20	33.33
10	**Using any natural herbal medications for diabetes mellitus**		
	Yes	13	21.66
	No	47	78.3
11	**Frequency of taking medication**		
	Once a day	33	55
	Twice a day	26	43.33
	Thrice a day	1	1.66
12	**Experienced any hypoglycemia symptoms**		
	Yes	18	30
	No	35	58.3
	Not sure	7	11.66
13	**Knowledge of hypoglycemia**		
	Yes	24	40
	No	36	60

Table 4.2 shows majority of sample 40(66.66%) were not using hypoglycemic agents and 20(33.33%) samples were using hypoglycemic agents.

Among 60 samples, 29(48.33%) of them were diagnosed as diabetes mellitus between 9-12 months, 19(31.66) of the samples were diagnosed diabetes mellitus between 0-4 months and 12(20%) of the samples were diagnosed as diabetes mellitus between 5-8 months respectively.

The samples, 40(66.66%) were using oral anti-hypoglycemic agents and 20(33.33%) samples were using insulin.

Majority of samples, 47(78.3%) were not using any natural herbal medication and 13(21.66%) of the samples were using the natural herbal medication.

Nearly 33(55%) were taking medication once a day, 26(43.33%) of the samples were taking medication twice a day and only 1(1.66%) sample were taking medication thrice a day.

Half of the samples, 35(58.3%) did not experience any hypoglycemic symptoms and 18 (30%) had hypoglycemic symptoms and 7(11.66%) were not sure about the hypoglycemic symptoms.

More than half of the samples 36(60%) of them had adequate knowledge on hypoglycemia and 24(40%) samples were having inadequate knowledge regarding hypoglycemia.

Table 4.3: Frequency and percentage distribution of diabetes mellitus clients based on awareness of management and prevention of hypoglycemia

n=60

S.No	Questions	Frequency (f) Answered	Percentage (%)	Frequency (f) Unanswered	Percentage (%)
Part A: HYPOGLYCEMIA;					
1.	Hypoglycemia	30	50	30	50
2.	Normal fasting blood sugar level	31	51.6	29	48.3
3.	Main causes of hypoglycemia	31	51.6	29	48.3
4.	Experience hypoglycemic episode	15	25	45	75
5.	Risk factor for hypoglycemia in diabetes	34	56.6	26	43.3
6.	Early symptoms of hypoglycemia	23	38.33	37	61.6
7.	Symptom of night time hypoglycemia	17	28.3	43	71.6
8.	Complication of hypoglycemia	38	63.3	22	36.6
PART B: MANAGEMENT OF HYPOGLYCEMIA:					
9.	Treat mild and moderate hypoglycemia	34	56.6	26	43.3
10.	Treatment for severe hypoglycemia	35	58.33	25	41.6
11.	Quick acting form of glucose	48	80	12	20
12.	Self-management for hypoglycemia	24	40	36	60
13.	Retest blood sugar level after the treatment of hypoglycemia	33	55	27	45
PART C: PREVENTION OF HYPOGLYCEMIA:					
14.	Precaution to take to avoid hypoglycemia while travelling	37	61.6	23	38.3
15.	Effect of weight lifting exercise in hypoglycemic patients	13	21.66	47	78.3
16.	Prevention of hypoglycemia	28	46.6	32	53.3
17.	Prevention of night time hypoglycemia	32	53.3	28	46.6
18.	Prevention of repeated hypoglycemia	32	53.3	28	46.6
19.	Duration of exercise of exercise for diabetic patients	24	40	36	60
20.	Beneficial for diabetic patients to avoid hypoglycemia	47	78.3	13	21.6

Table 4.3 represents the questions from the self-structured knowledge questionnaire and the frequency distribution of the persons answering the questions correctly. The knowledge questionnaire was divided into three areas as hypoglycemic condition, management of hypoglycemia and prevention of hypoglycemia.

Based on the table the data shows that, in the area of hypoglycemic condition, more than half of the samples 38 (63.3%) out of 60 samples had the idea about the complication of hypoglycemia but only 15 (25%) had answered the question on when they had an episode of hypoglycemia while skipping meals.

In the area of management of hypoglycemia, majority of them 48 (80%) had the knowledge about the quick acting form of glucose, while less than half of them had the idea on self-management of hypoglycemia.

Out of the 7 questions in the area of prevention of hypoglycemia, most of them 47 (78.3%) had the knowledge on the type of exercise which is safe and beneficial for diabetic clients to avoid hypoglycemia and only 13 (21.66%) of them had the idea about the effect of weight lifting exercise on hypoglycemic patients.

Table 4.4: Frequency and percentage distribution of awareness on management of hypoglycemia among diabetes mellitus clients

n= 60

Variable	Adequate knowledge (0-33%)		Moderately adequate knowledge (34-66%)		Inadequate knowledge (67–100%)		Mean	SD
	f	%	f	%	f	%		
Hypoglycemia	9	15	37	61.6	14	23.3	3.63	1.67
Management of hypoglycemia	22	36.6	13	21.6	25	41.6	2.88	1.33
Prevention of hypoglycemia.	16	26.6	34	56.6	10	16.6	3.55	1.27

In table 4.4, frequency and percentage distribution of awareness of hypoglycemia indicates the majority 37(61.6%) samples were having the moderately adequate knowledge; whereas14 (23.3%) samples were having inadequate knowledge and 9(15%) samples having adequate knowledge.

Regarding the management of the hypoglycemia it indicates 25(41.6) samples were having inadequate knowledge whereas 22 (36.6%) samples were having adequate knowledge and 13(21.6%) samples were having moderately adequate knowledge. Regarding the prevention of the hypoglycemia, the majority 34(56.6%) samples were having moderately adequate knowledge, whereas 16(26.6%) samples were having adequate knowledge and 10(16.6%) samples having inadequate knowledge.

Table 4.5: Frequency and percentage distribution of Knowledge of diabetes mellitus clients regarding hypoglycemia

n= 60

Variable	Adequate knowledge (0-33%)		Moderately adequate knowledge (34-66%)		Inadequate knowledge (67 – 100%)		Mean	SD
	f	%	f	%	f	%		
Knowledge regarding Hypoglycemia	13	21.6	39	65	8	13.3	10.07	2.89

The table 4.5 shows among 60diabetic mellitus clients 13 (21.6%) were had adequate knowledge, 39(65%) were moderately adequate knowledge, 8(13.3%) were inadequate knowledge

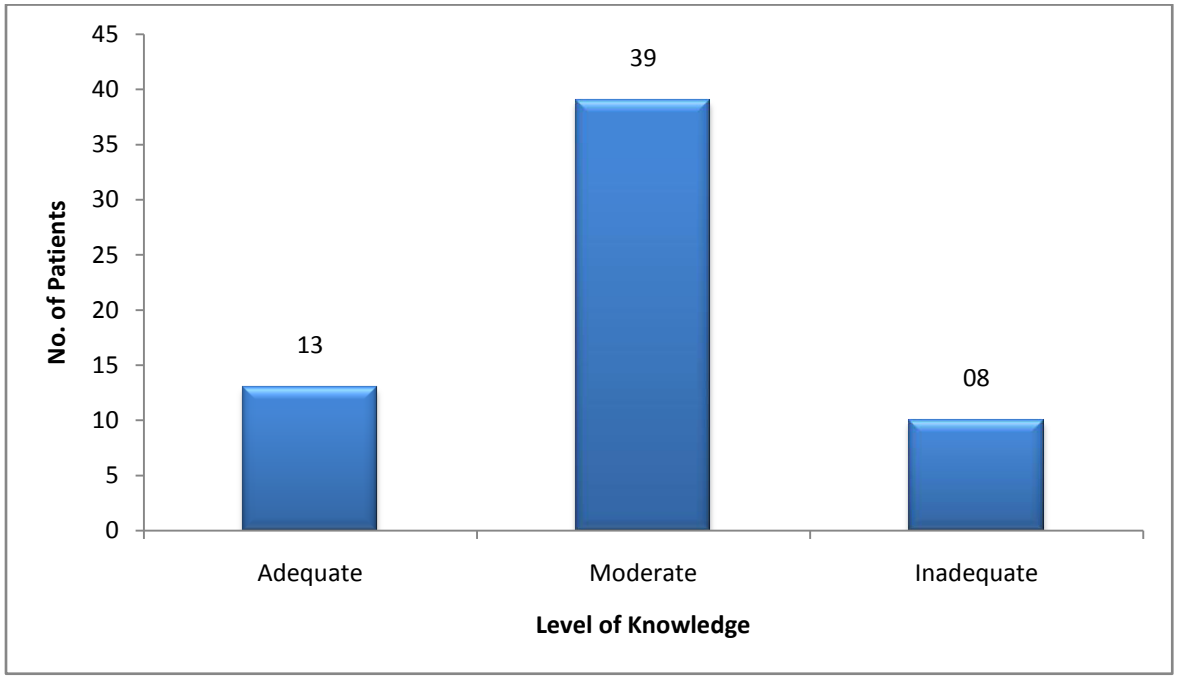

Figure 4.1 Percentage distributions of demographic variables of awareness on management of hypoglycemia among diabetic clients

Table 4.6: Association of knowledge regarding awareness on management of hypoglycemia among diabetes mellitus clients with selected demographic variables

n=60

Demographic Variables	Inadequate Knowledge	Moderately adequate	Adequate knowledge	χ^2	Degree of freedom	Table Value χ^2
	f	f	f			
Gender				2.310 N.S	2	5.99
Male	9	17	6			
Female	4	20	4			
Age				**16.76 S***	6	12.5
31-40 Years	2	4	0			
41-50 Years	10	8	5			
51-60 Years	0	18	4			
Above 60 years	1	7	1			
Educational status				5.77 N.S	6	12.5
Primary education	6	12	6			
Secondary education	4	16	2			
Graduate	2	6	0			
Illiterate	1	3	2			
Occupation				6.736 N.S	6	12.5
Unemployed	2	6	1			
Self employed	6	10	6			
Private employed	4	20	2			
Government employed	1	1	1			
Income per month				2.537 N.S	6	12.5
Below Rs.5000	1	1	0			
Rs.5001-Rs.10000	8	22	6			
Rs.10001-Rs.20000	4	12	4			
Above Rs. 20000	0	2	0			
Religion				3.46 N.S	4	9.48
Hindu	9	26	7			
Muslim	3	3	2			
Christian	1	8	1			

P<0.05, *=Statistically Significant, N.S= Not significant

H_1: There will be a significant association between the level of knowledge of diabetic clients on management of hypoglycemia and their selected demographic variable.

It is observed from table 4.6 that the χ^2(16.76) value was higher than table value (12.5) regarding awareness on management of hypoglycemia among diabetic mellitus clients. It shows age is associated for awareness on management of hypoglycemia among diabetic mellitus clients at ($p<0.05$). Hence the hypothesis is accepted.

Table 4.7: Association of knowledge regarding awareness on management of hypoglycemia among diabetes mellitus clients with selected extraneous variables

n=60

Extraneous variables	Inadequate Knowledge	Moderately adequate	Adequate knowledge	χ^2	Degree of freedom	Table Value χ^2
	f	f	f			
Duration since diagnosed						
0-4 months	6	11	2	2.33 N.S	4	9.48
5-8 months	2	7	3			
9-12 months	5	19	5			
Usage of any hypoglycemic agent						
Yes	3	15	2	2.28 N.S	2	5.99
No	10	22	8			
Treatment for diabetes mellitus						
OralAnti-hypoglycemic Agent	8	24	8	1.008 N.S	2	5.99
Insulin	5	13	2			
On any natural herbal medications for diabetes mellitus						
Yes	0	11	2	5.029 N.S	2	5.99
No	13	26	8			
Experienced any hypoglycemia symptoms						
Yes	3	11	4	1.25 N.S	4	9.48
No	9	21	5			
Not sure	1	5	1			
Received the information on hypoglycemia						
Yes	7	14	3	1.53N.S	2	5.99
No	6	23	7			

N.S= Not significant

It is observed from table 4.7 that the χ^2 value were lesser than table value regarding awareness on management of hypoglycemia among diabetic mellitus clients. It shows that there is no association between extraneous variables and awareness on management of hypoglycemia among diabetic mellitus clients were not significant.

CHAPTER-V

RESULTS AND DISCUSSION

Introduction:

This chapter deals with the discussion based on the objectives, study findings and conclusion by relating with the conclusion and discussion of previous studies. The discussion brings the right report to closure. Discussion section makes sense of the research. The main aim of the study was to assess the awareness of hypoglycemia. The study was conducted in PSG hospital. Each individual baseline information was collected and they were assessed for knowledge regarding hypoglycemia.

5 .1 Demographic profiles of patients with hypoglycemia:

In the present study, samples with 23 (38.3%) 31- 40yrs of age group were affected with hypoglycemia. Considering the gender, the prevalence of hypoglycemia was high in 32(53.4%) males compared to females 28(46.6%). The study finding of the descriptive study was conducted among 100 diabetic patients in Mangalore at Father Muller Medical College hospital. Among 100 diabetic clients (55%) were between the age group of 40-60 years appear at a high risk of experiencing severe hypoglycemia. Among 100 patients 58% male and 42% female diabetics were found to have prevalence of hypoglycemia **(Spoorthi Ashok Pai et al., 2015).**

5.2 Awareness on management of hypoglycemia among diabetes mellitus clients:

In the current study, majority of the samples (41.6%) are having inadequate knowledge and reduced awareness regarding management of hypoglycemia. A similar prospective study on reduced awareness on hypoglycemia in adults with IDDM was conducted in Vanderbilt University, total of 78 IDDM adults were selected. Among 78 patients, 35(44%) had inadequate knowledge and reduced awareness regarding management of hypoglycemia **(William.L.Clarke, et al., 1998).**

5.3 Awareness regarding hypoglycemic condition:

In the present study based on the awareness on management of hypoglycemic condition, majority 34 (56.6%) of them aware about the risk factor of hypoglycemia in diabetes.These finding are also similarto another prospective study which was done among 60 patients, 30(50%) were found that aware about the risk factor of hypoglycemia (A**nn.E.Gold, et al., 1994).**

5.4 Awareness regarding prevention of hypoglycemia

Regarding the prevention of hypoglycemia 24 (40%) patients in this study had knowledge that exercise can reduce the risk of hypoglycemia. A similar study conducted on effects of hypoglycemia on counter regulatory responses to exercises reveals that physical exercise elicits a complex pattern of adoptive neuroendocrine and metabolic responses aimed at maintaining glucose homeostasis among 100 patients. Among 100 patients 32(32%) were aware about the knowledge about exercise to prevent hypoglycemia **(Donna Tate, 2006).**

5.5 Association of knowledge regarding awareness on management of hypoglycemia among diabetes mellitus patients with selected demographic variables

The current study shows, there was an association between age and knowledge regarding awareness on management of hypoglycemia. Similar study findings werereported by another study on association between hypoglycemia and age in type 2 diabetes mellitus **(Stephen. Davis, 2003).**

There was no association between gender, educational status, occupation, income, religion, duration of diagnosis with knowledge regarding awareness on management of hypoglycemia. Similar study findings on reduced awareness of hypoglycemia revealed that there was no association between the knowledge and the gender and educational status **(William l. Clarke, MD et al., 2009).**

CHAPTER –VI

SUMMARY AND CONCLUSION

The present study was conducted to assess the awareness on management of hypoglycemia among diabetic clients in PSG hospitals, Coimbatore in view of preparing an information booklet

Relevant literatures were reviewed to enrich the knowledge on the selected phenomenon that is to know about the awareness on management of hypoglycemia and develop an appropriate conceptual model, developing a frame work and research plan.

Research design adopted for this study was exploratory descriptive design. The study was conducted in PSG hospitals Coimbatore among 60 samples those who are attending OPD clinic.

Validity and reliability of the tool was tested through the pilot study. By keeping the objectives in mind the tool was prepared on hypoglycemia condition, management of hypoglycemia and prevention of hypoglycemia.

The present study was conducted to assess the awareness on management of hypoglycemia among diabetic clients.

6.1 Major Findings of the Study:

1. Among60 samples, majority of the samples 32(53.4%) were male and only 28(46.6%) of the samples were female. Most of the samples 23(38.33%) belongs age group between 31-40years.
2. On verifying the educational status, 24(40%) of them have primary education, 22(36.66%) were qualified with secondary education, 8(13.33%) were graduates and only 6(10%)were illiterate.
3. Regarding the knowledge level of samples, 13 (21.6%) had adequate knowledge, 39(65%) had moderately adequate knowledge, and 8(13.3%) were having inadequate knowledge.

4. Among 60 samples, half of the samples,40(66.66%) was not using hypoglycemic agents. Majority 29(48.33%) of them were diagnosed as diabetes mellitus between 9-12 months. More than half of them,40(66.66%) were using oral anti-hypoglycemic agents and 20(33.33%) samples were using insulin. On verifying the medicine intake, 33(55%) were taking medication once a day,26(43.33%) of the samples were taking medication twice a day and only 1(1.66%) sample were taking medication thrice a day. More than half of the samples 36(60%) of them had adequate knowledge on hypoglycemia and 24(40%) samples were having inadequate knowledge regarding hypoglycemia.
5. Regarding the management of the hypoglycemia, 25(41.6%) of samples had inadequate knowledge, whereas 22 (36.6%) samples had adequate knowledge and13(21.6%) samples had moderately adequate knowledge. Regarding the prevention of the hypoglycemia, the majority 34(56.6%) samples had moderately adequate knowledge, whereas 16(26.6%) ofsamples had adequate knowledge and 10(16.6%)samples had inadequate knowledge.
6. There was a significant association between age and knowledge level, but there was no significant association between gender, religion, educational status, occupation, duration of diagnosis, treatment for diabetes mellitus, and information on hypoglycemia.

6.2 Conclusion:

Hypoglycemia is a major limiting factor in overall glycemic management of diabetes and may lead to other possible detrimental effects. Glycemic control should be individualized based on characteristics with some degree of safety. Recognition of hypoglycemia risk factors, blood glucose monitoring, selection of appropriate regimens, education programmes by using information booklet for patients with diabetes can be used to maintain glycemic control.

6.3 Nursing Implications:

The present study has the implication on,

6.3.1Nursing practice:

- Nursing includes preventive, promotive, curative and rehabilitative services to the population. Health education can be given to the patient regarding the management of hypoglycemia
- Nurses can conduct an awareness programme to improve the life style practices regarding hypoglycemia that can prevent the early complications.
- Conducting regular diabetic campaign to monitor the diabetic client status and prevent the complication through various lifestyle modifications and increased physical activity.

6.3.2 Nursing Education:

- Nursing education should emphasize on preparing prospective nurses to assess and identify the hypoglycemic patients and to take necessary interventions to reassure them.
- Many in-service education programmes can be planned by the nursing personnel which help them to learn newer concepts and update their knowledge regarding prevention of hypoglycemia.
- Nurse educators can prepare information booklet and brochure for hypoglycemic patients and make them aware about hypoglycemic symptoms and its management.

6.3.3 Nursing Administration:

- Developing a protocol to overcome and prevent hypoglycemia in the hospital settings.
- The administrator can also work as a resource person in providing education regarding hypoglycemia patients and relatives.

- The administrators should motivate and initiate the health personnel in organizing, conducting and participating in various educational programmes to the hypoglycemic patients that would improve their health.

6.3.4 Nursing Research:

- Extensive research studies can be undertaken in different fields to quantify the magnitude of knowledge and attitude in hypoglycemic patients.
- The study result can be used as evidence based material for improving the quality of care.

6.4 Limitations:

- The study was conducted only in OPD settings.
- Small sample size has restricted the generalization of the findings.

6.5 Recommendations:

- A similar study can be done on large sample to generalize the findings.
- A study can be undertaken with a control group design.
- A follow up study for a longer period for more reliability and effectiveness of the self-management program on diet, exercise, medications and preventing diabetic complications.

Summary:

This chapter dealt with the summary of the followed by its implications in nursing, nursing practice and nursing research. This chapter also spreads light on the limitations and recommendations.

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ANNEXURE-I

PERMISSION LETTER

FROM

Prameela. A
I Year M.Sc Nursing
PSG College of Nursing
Peelamedu
Coimbatore-4

TO

Dr. K. Jeyachandran
Professor & HOD
PSG Hospitals
Coimbatore-4

Through: The Principal, PSG College of Nursing

Respected Sir

SUBJECT: **Seeking permission to carry out the study in PSG Hospitals, Coimbatore.**

I Prameela.A - I year M.Sc. Nursing student is interested in doing this study. "**A Study to assess the awareness on management of hypoglycemia among diabetic clients in PSG Hospital", Coimbatore in view of preparing an information booklet**". Kindly grant me permission to carry out the study.

Thanking You

Date: 3/7/15

Place: Coimbatore.

Yours sincerely
Prameela.
Mrs. Prameela.A
I year M.Sc Nursing

Signature of HOD,General Medicine;

4/7/15

Dr. K. Jayachandran, MD
Professor & HOD
Department of Medicine
PSG Hospitals
Coimbatore - 641 004.

PERMISSION LETTER

FROM

Prameela. A
I Year M.Sc Nursing
PSG College of Nursing
Peelamedu
Coimbatore-4

TO

Dr. R.Senthil Kumar
HOD,Department of Endocrinology
PSG Hospitals
Coimbatore-4

Through: The Principal, PSG College of Nursing

Respected Sir

SUBJECT: **Seeking permission to carry out the study in PSG Hospitals, Coimbatore.**

I Prameela.A - I year M.Sc. Nursing student is interested in doing this study. "**A Study to assess the awareness on management of hypoglycemia among diabetic clients in PSG Hospital", Coimbatore in view of preparing an information booklet**". Kindly grant me permission to carry out the study.

Thanking You

Date: 3/7/15

Place: Coimbatore

Yours sincerely
Prameela
Mrs. Prameela.A
I year M.Sc Nursing

Signature of HOD, Endocrinology:

4/7/15

Dr. R. SENTHILKUMAR
M.D.,MRCP (UK) FACE
(Diabetes and Endocrinology)
Assistant Professor
Department of Endocrinology
PSG Hospitals, Coimbatore - 4.

ANNEXURE-II

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee
Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

To
Ms Prameela A
I M Sc Nursing
PSG College of Nursing
Coimbatore

Ref: Project No.15/238

Date: July 22, 2015

Dear Ms Prameela,

Institutional Human Ethics Committee, PSG IMS&R reviewed and discussed your application dated 09.07.2015 to conduct the research study entitled *"A study to assess the awareness on management of hypoglycemia among diabetic clients in view of preparing an Information Booklet"* during the IHEC meeting held on 10.07.2015.

The following documents were reviewed and approved:

1. Project Submission form
2. Study protocol
3. Informed consent forms
4. Data collection tool
5. Permission letter from concerned Heads of Department
6. Current CVs of Principal investigator, Co-investigator
7. Budget

The following members of the Institutional Human Ethics Committee (IHEC) were present at the meeting held on 10.07.2015 at IHEC Secretariat, PSG IMS & R between 10.00 am and 11.00 am:

Sl. No.	Name of the Member of IHEC	Qualification	Area of Expertise	Gender	Affiliation to the Institution Yes/No	Present at the meeting Yes/No
1	Dr. P. Sathyan (Chairperson, IHEC)	DO, DNB	Clinician (Ophthalmology)	Male	No	Yes
2	Dr. S. Bhuvaneshwari (Member-Secretary, IHEC)	MD	Clinical Pharmacology	Female	Yes	Yes
3	Dr. S.Shanthakumari	MD	Pathology, Ethicist	Female	Yes	Yes
4	Dr Sudha Ramalingam	M.D	Epidemiologist Alt. Member – Secretary	Female	Yes	Yes
5	Dr D Vijaya	M Sc., Ph D	Basic Medical Sciences (Biochemistry)	Female	Yes	Yes

The study is approved in its presented form. The decision was arrived at through consensus. Neither PI nor any of proposed study team members were present during the decision making of the IHEC. The IHEC functions in accordance with the ICH-GCP/ICMR/Schedule Y guidelines. The approval is valid until one year from the date of sanction. You may make a written request for renewal / extension of the validity, along with the submission of status report as decided by the IHEC.

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee

Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

Following points must be noted:

1. IHEC should be informed of the date of initiation of the study
2. Status report of the study should be submitted to the IHEC every 12 months
3. PI and other investigators should co-operate fully with IHEC, who will monitor the trial from time to time
4. At the time of PI's retirement/intention to leave the institute, study responsibility should be transferred to a colleague after obtaining clearance from HOD, Status report, including accounts details should be submitted to IHEC and extramural sponsors
5. In case of any new information or any SAE, which could affect any study, must be informed to IHEC and sponsors. The PI should report SAEs occurred for IHEC approved studies within 7 days of the occurrence of the SAE. If the SAE is 'Death', the IHEC Secretariat will receive the SAE reporting form within 24 hours of the occurrence
6. In the event of any protocol amendments, IHEC must be informed and the amendments should be highlighted in clear terms as follows:
   a. The exact alteration/amendment should be specified and indicated where the amendment occurred in the original project. (Page no. Clause no. etc.)
   b. Alteration in the budgetary status should be clearly indicated and the revised budget form should be submitted
   c. If the amendments require a change in the consent form, the copy of revised Consent Form should be submitted to Ethics Committee for approval
   d. If the amendment demands a re-look at the toxicity or side effects to patients, the same should be documented
   e. If there are any amendments in the trial design, these must be incorporated in the protocol, and other study documents. These revised documents should be submitted for approval of the IHEC and only then can they be implemented
   f. Any deviation-Violation/waiver in the protocol must be informed to the IHEC within the stipulated period for review
7. Final report along with summary of findings and presentations/publications if any on closure of the study should be submitted to IHEC

Kindly note this approval is subject to ratification in the forthcoming full board review meeting of the IHEC.

Thanking You,

Yours Sincerely,

SECRETARY
PSG IMS&R
COIMBATORE-641004.
INSTITUTIONAL HUMAN ETHICS COMMITTEE

Dr S Bhuvaneshwari
Member - Secretary
Institutional Human Ethics Committee

ANNEXURE-III

PSG Institute of Medical Science and Research, Coimbatore
Institutional Human Ethics Committee
INFORMED CONSENT FORMAT FOR RESEARCH PROJECTS

Healthy participants information sheet

I Prameela.A, am carrying out a study on the topic: **" A Study to assess the awareness on Management of Hypoglycemia among Diabetic Clients in PSG Hopsitals , Coimbatore in view of preparing an Information Booklet."**as part of my research project being carried out under the aegis of the Department of: Nursing.

My research guide is: Mrs.Anuratha.M.D, Associate Professor PSG College of Nursing /
Dr. G. Malarvizhi, Vice Principal PSG College of Nursing

Justification for the study: Creating awareness on signs and symptoms of Hypoglecemia among diabetic clients may reduce the complications.

The objectives of this study are:

Primary Objective: Assess the knowledge of diabetic clients regarding management of hypoglycemia.

Secondary Objective:

Find the association between the knowledge of diabetic clients on managment of hypoglycemia and their selected demographic variable.

Sample size: 50.

Study volunteers / participants are (specify population group & age group): Diabetic clients.

Location: PSG Hospitals, Coimbatore.

I request you to kindly cooperate with me in this study. We propose collect background information and other relevant details related to this study. We will be carrying out:

Data collected will be stored for a period of __5___ years. We will not use the data as part of another study.

Benefits from this study: To create awareness on managment of hypoglycemia among diabetic clents.

Projected outcome of the study: Identifying the knowledge regarding hypoglycemia on diabetic clients will enhance the patients to reduce the complication.

Signature / Left thumb impression of the Study Volunteer / Legal Representative:

Signature of the Interviewer with date: Witness:

Contact number of PI:8754951448

Contact number of Ethics Committee Office: 0422 2570170 Extn.: 5818

INFORMED CONCERN FOR HEALTHY PARTICIPANT'S

The above information regarding the study, has been read by me/ read to me, and has been explained to me by the investigator/s. Having understood the same, I hereby give my consent to them to interview me. I am affixing my signature / left thumb impression to indicate my consent and willingness to participate in this study (i.e., willingly abide by the project requirements).

Signature / Left thumb impression of the Study Volunteer / Legal Representative:

Signature of the Interviewer with date: Witness:

Contact number of PI: 8754951448
Contact number of Ethics Committee Office: 0422 2570170 Extn.: 5818

ஒப்புதல் படிவம்

தேதி :

பிரமிளா .ஆ, ஆகிய நான் பி.எஸ்.ஜி மருத்துவக் கல்லூரியின் செவிலியர் துறையின் கீழ், **"தாழ்சர்க்கரை நிலையின் விழிப்புணர்வு மற்றும் மேலாண்மையை சர்க்கரை நோயாளிகளுக்கு கற்றுக் கொடுத்தலின் மூலம் விழிப்புணர்வை ஏற்படுத்துதல்"** என்ற தலைப்பில் ஆய்வு மேற்கொள்ள உள்ளேன்.

என் ஆய்வு வழிகாட்டி: துணை உதவி பேராசிரியை திருமதி. அனுராதா .ம .த

ஆய்வு மேற்கொள்வதற்கான அடிப்படை:

- தாழ்சர்க்கரை நிலையைப்பற்றி சர்க்கரை நோயாளிகளுக்கு போதுமான விழிப்புணர்வு இருந்தாலும் அவர்றை நடைமுறைப்படுத்துவதின் முக்கியத்துவம் குறைந்துள்ளது. தாழ்சர்க்கரை நிலையின்விழிப்புணர்வை கையாளாமல் இருந்தால் தாழ்சர்க்கரை நிலை நோயாளிகளுக்கு பக்க விளைவுகள் நேரிடலாம்.

ஆய்வின் நோக்கம்:

- பி.எஸ்.ஜி மருத்துவமனையில் தாழ்சர்க்கரை நிலையின் விழிப்புணர்வு மற்றும் மேலாண்மையின் முக்கியத்தும் மூலம் சர்க்கரை நோயாளிகளின் அடிப்படை அறிவுத்திறனைக் கண்டறிதல்.

ஆய்வில் பங்கு பெறும் நபர்களின் எண்ணிக்கை: 50

ஆய்வு மேற்கொள்ளும் இடம்: பி. எஸ். ஜி. மருத்துவமனை, கோயம்புத்தூர்.

ஆய்வின் பலன்கள்:

சர்க்கரை நோயாளிகளுக்கு தாழ்சர்க்கரை நிலையைப்பற்றி விழிப்புணர்வு மற்றும் மேலாண்மையைக் கற்றுக்கொடுத்தலின் மூலம் தாழ்சர்க்கரை நிலை வராமல் தடுக்கலாம்.

ஆய்வினால் ஏற்படும் அசௌகரியங்கள் / பக்க விளைவுகள்: பக்க விளைவுகள் எதுவும் இல்லை.

இந்த ஆய்வில் கிடைக்கும் தகவல்கள் 5 வருடங்கள் பாதுகாக்கப்படும். இவை வேறு எந்த ஆய்விற்கும் பயன்படுத்தப்பட மாட்டாது. எந்த நிலையிலும் உங்களைப் பற்றிய தகவல்கள் யாருக்கும் தெரிவிக்கப்படமாட்டாது. அவை இரகசியமாக வைக்கப்படும்.

எந்த நேரத்தில் வேண்டுமானாலும் ஆய்விலிருந்து விலகிக்கொள்ளும் உரிமை உங்களுக்கு உண்டு. ஆய்விலிருந்து விலகிக்கொள்வதால் உங்களுக்கு அளிக்கப்படும் சிகிச்சையில் எந்த வித மாற்றமும் இருக்காது.

இந்த ஆராய்ச்சிக்காக உங்களிடம் சில கேள்விகள் கேட்கப்படும்.

மேலும், இந்த ஆய்வில் பங்கு கொள்வது உங்கள் சொந்த விருப்பம். இதில் எந்த விதக் கட்டாயமும் இல்லை. நீங்கள் விருப்பப் பட்டால், இந்த ஆய்வின் முடிவுகள் உங்களுக்குத் தெரியப் படுத்தப்படும்.

ஆய்வாளரின் கையொப்பம் :

தேதி :

ஆய்வுக்குட்படுபவரின் ஒப்புதல்:

நான் இந்த ஆராய்ச்சியின் நோக்கம் மற்றும் அதன் பயன்பாட்டினைப் பற்றி தெளிவாகவும், விளக்கமாகவும் தெரியப்படுத்தப் பட்டுள்ளேன். இந்த ஆராய்ச்சியில் பங்கு கொள்ளவும், இந்த ஆராய்ச்சியின் மருத்துவ ரீதியான குறிப்புகளை வரும் காலத்திலும் உபயோகப்படுத்திக் கொள்ளவும் முழு மனதுடன் சம்மதிக்கிறேன்.

ஆய்வுக்குட்படுபவரின் பெயர், முகவரி:

கையொப்பம்:
தேதி:

ஆய்வாளரின் தொலைபேசி எண்: 8754951448
மனித நெறிமுறைக் குழு அலுவலகத்தின் தொலைபேசி எண்: 0422 2570170 Extn.: 5818

ANNEXURE-IV

INSTRUMENT AND TOOL FOR
DATA COLLECTION
INSTRUCTION FOR PARTICIPANTS

SECTION A: Demographic data:

It consists of personal information such as age, sex, educational status, occupation, income, religion, family history, duration of diabetes, past history of any natural medicines, received information on hypoglycemia.

SECTION B: Awareness and Management of Hypoglycemia

Questions related to

PART A: Hypoglycemia

PART B: Management of hypoglycemia

PART C: Prevention of hypoglycemia

- Read the above questions and answers correctly
- Totally 20 questions. Each question carries one mark.
- Each question consists of four option tick only one answer on the respective bracket. More than one answer is considered invalid.
- The details will be kept confidential.

INSTRUMENTS AND TOOL FOR DATA COLLECTION

Section A

Demographic Data

1. Sample No:_____
2. Age in years
    a. 21-30 years ☐
    b. 31-40 years ☐
    c. 41-50 years ☐
    d. 51-60 years ☐
    e. > 60 years ☐
3. Gender
    a. Male ☐
    b. Female ☐
4. Educational status
    a. Primary education ☐
    b. Secondary education ☐
    c. Graduate ☐
    d. Illiterate ☐
5. Occupation
    a. Unemployed ☐
    b. Self employed ☐
    c. Private employed ☐
    d. Government employed ☐
6. Income per month
    a. Below Rs.5000 ☐
    b. Rs.5001-Rs.10000 ☐
    c. Rs.10000-Rs.20000 ☐
    d. Above Rs. 20000 ☐
7. Religion
    a. Hindu ☐
    b. Muslim ☐
    c. Christian ☐
    d. Others ☐

8. Are you diagnosedas diabetic ____
   If yes, since when ____

9. Are you using any hypoglycemic agent?
   a. Yes ☐
   b. No ☐

10. Treatment for diabetes mellitus
   a. Oral antihypoglycemic agent ☐
   b. Insulin ☐
   If yes,
      i. Name of agent _____
      ii. Dosage _____

11. Family history of diabetes mellitus
   a. Yes ☐
   b. No ☐

Do you take any natural herbal medications for diabetes mellitus

   a. Yes ☐
   b. No ☐

12. Do you have any history of hypoglycemia
   a. Yes ☐
   b. No ☐
   If yes, specify _____

13. Have you ever had an episode of very low blood sugar
   a. Yes ☐
   b. No ☐
   If yes, specify _____
      i. Home remedies ☐
      ii. Blood sugar ☐
      iii. Glucose random blood sugar ☐

Section B:

Part A: Hypoglycemic Condition:

1. **What is hypoglycemia?**

   Blood sugar level is

   a) Less than 70 mg/dl ☐
   b) 70- 110 mg/dl ☐
   c) 110-150mg/dl ☐
   d) More than 150 mg/dl ☐

2. **What is the normal fasting blood sugar level?**

   Blood sugar level is

   a) Less than 70 mg/dl ☐
   b) 70-110 mg/dl ☐
   c) 120-150 mg/dl ☐
   d) 150 -300 mg/dl ☐

3. **What are themain causesof hypoglycemia?**

   a) Irregular meal time ☐
   b) Unplanned exercise ☐
   c) Excessivealcohol consumption ☐
   d) Intake of carbohydrate food ☐

4. **How often do you experience hypoglycemic episode ?**

   a) skipping meals ☐
   b) During exercise ☐
   c) Early morning ☐
   d) Night time ☐

5. **What is the risk factor for hypoglycemia in diabetes?**

   a) Usage of high dosage of antidiabetic drugs ☐
   b) Usage of low dose of insulin ☐
   c) Intake of more fluids ☐
   d) Intake of more sugar content foods ☐

6. What are all the early symptoms of hypoglycemia?

a) Frequent thirst, frequent urination and frequent intake of water ☐
b) Excessive perspiration, palpitations and body shaking ☐
c) Body pain, breathlessness and stomach pain ☐
d) Decreased pulse rate, giddiness and vomiting ☐

7. What is the symptom of night time hypoglycemia?

a) Body pain ☐
b) Mood irritability ☐
c) Sleeplessness ☐
d) Clammy neck ☐

8. What is the complication of hypoglycemia?

a) Loss of consciousness ☐
b) Dehydration ☐
c) Breathlessness ☐
d) Gastrointestinal bleeding ☐

PART B:MANAGEMENT OF HYPOGLYCEMIA:

9. How do you treat mild and moderate hypoglycemia?

a) Intake of 15 gms of glucose ☐
b) Intake of 20 gms of glucose ☐
c) Intake of 25 gms of glucose ☐
d) Intake of 30 gms of glucose ☐

10. Which of the following is the treatment for severe hypoglycemia?

a) Administration of 10gms of glucose ☐
b) Administration of 20 gms of glucose ☐
c) Administration of 30 gms of glucose ☐
d) Administration of 40 gms of glucose ☐

11. What is the short acting form of glucose?

a) 3 teaspoons sugar (dissolved in water) ☐
b) Intake of salt water ☐
c) Intake 2 glass of water ☐
d) Intake of pickles ☐

12. Which of the following is the self management for hypoglycemia?

a) Taking 15 gms of sugar ☐
b) Fruits like guava or papaya inbetween the meals ☐
c) Taking 500 ml of water ☐
d) Taking cheese and butter ☐

13. When should we retest blood sugar level after the treatment of hypoglycemia?

a) After 5 minutes ☐
b) After 10 minutes ☐
c) After 20 minutes ☐
d) After 15 minutes ☐

PART C: PREVENTION OF HYPOGLYCEMIA:

14. What precaution you should take to avoid hypoglycemia while travelling?

a) Carrying sugar or sugar candy ☐
b) Carrying a glass of milk ☐
c) Carryingwater ☐
d) Carryingguava or biscuits ☐

15. What is the effect of weight lifting exercise in hypoglycemic patients?

a) Maintains the blood sugar level ☐
b) Lowers the blood sugar level ☐
c) Increases the blood cholesterol level ☐
d) Increases the blood sugar level ☐

16. What is the way to prevent hypoglycemia ?

a) Avoid starving more than 4-5 hours ☐
b) Avoiding snacks in-between meals ☐
c) Avoiding snacks in-between exercises ☐
d) Avoiding drinking water ☐

17. What is the way of prevent night time hypoglycemia?

a) Taking extra glucose containing snacks before going to bed ☐
b) Starve before going to bed ☐
c) Drinking more amount of water ☐
d) Drinking milk before bed time ☐

18. Which is the best way to prevent repeated hypoglycemia?

a) The person should starve for the day ☐
b) The person should eat more sugar containing food ☐
c) The person should have the usual meal that is due at the time ☐
d) The person should exercise immediately ☐

19. How long diabetic patients should do exercise?

a) Upto 15 minutes ☐
b) 30 minutes to 1 hour ☐
c) 1hour to 1.30hour ☐
d) Upto 2 hours ☐

20. Which type of exercise is safe and beneficial for diabetic patients to avoid hypoglycemia?

a) Walking ☐
b) Weight lifting ☐
c) Running ☐
d) Jogging ☐

Scoring Interpretation

Each carry	-	1 mark
Total mark	-	20 marks

Interpretation

Inadequate Knowledge	-	1-33%
Moderately adequate knowledge	-	34-66%
Adequate Knowledge	-	67-100%

பகுதி-அ: புள்ளி விவரம்

இவற்றில் வயது, பாலினம், கல்வித்தகுதி, தொழில், வருமானம், மதம், குடும்ப வரலாறு, சர்க்கரை நோயின் விவரம், முந்தைய நிலையில் இயற்கை மருத்துவம் பற்றிய விவரம், தாழ்சர்க்கரை நிலையைப்பற்றிய விவரம் அறிதல் போன்றவைகளாகும்.

பகுதி-ஆ: தாழ்சர்க்கரை நிலைக்கான விழிப்புணர்வு மற்றும் மேலாண்மை

கேள்விகள் தொடர்பாக

பகுதி-அ: தாழ்சர்க்கரை நிலை.

பகுதி-ஆ: தாழ்சர்க்க்ரை நிலையின் மேலாண்மை.

பகுதி-இ: தாழ்சர்க்க்ரை நிலையை தடுத்தல்.

- ❖ கேள்விகள் மற்றும் பதில்களை கவனமாகப்படிக்கவும்
- ❖ மொத்தம் 20 கேள்விகள் ஒவ்வொரு கேள்விகளுக்கும் 1 மதிப்பெண்
- ❖ ஒவ்வொரு கேளிவிகளுக்கும் 4 பதில்கள் கொடுக்கப்பட்டுள்ளன சரியான பதிலை (✓) செய்யவும். ஒன்றுக்கும் மேற்பட்ட பதில்களுக்கு மதிப்பெண் கிடையாது.
- ❖ அனைத்து விவரங்களும் இரகசியமாக பாதுகாக்கப்படும்.

பகுதி-அ

பிரிவு-அ

புள்ளி விவரம்:

1. வரிசை எண்: _____
2. வயது
   - அ. 21 - 30 [ ]
   - ஆ. 31 - 40 [ ]
   - இ. 41 - 50 [ ]
   - ஈ. 51 - 60 [ ]
   - உ. 60க்கும் மேல் [ ]
3. பாலினம்
   - அ. ஆண் [ ]
   - ஆ. பெண் [ ]
4. கல்வி நிலை (தகுதி)
   - அ. முதன்மை நிலைக்கல்வி [ ]
   - ஆ. இரண்டாம் நிலைக்கல்வி [ ]
   - இ. பட்டதாரி [ ]
   - ஈ. படிக்கத்தெரியாதவர் (கல்வியறிவின்மை) [ ]
5. தொழில்
   - அ. வேலையின்மை [ ]
   - ஆ. சுய வேலை [ ]
   - இ. தனியார் நிறுவன பணியாளர் [ ]
   - ஈ. அரசு பணியாளர் [ ]
6. மாத வருமானம்
   - அ. ரூபாய் 5,000க்கும் கீழ் [ ]
   - ஆ. ரூபாய் 5,001 - ரூபாய் 10,000 [ ]
   - இ. ரூபாய் 10,001 - ரூபாய் 20,000 [ ]
   - ஈ. ரூபாய் 20,000க்கும் மேல் [ ]
7. மதம்
   - அ. இந்து [ ]
   - ஆ. முஸ்லீம் [ ]
   - இ. கிறிஸ்த்துவம் [ ]
   - ஈ. இதர மதங்கள் [ ]

8. தாங்கள் சர்க்கரை நோயாளி என கண்டறியப்பட்டது

அ. ஆம் என்றால் எப்போதிலிருந்து _____

9. தாங்கள் தாழ்சர்க்கரை நோய்க்கானமருந்துகளை உபயோகிக்கிறீர்களா?

அ. ஆம் [ ]

ஆ. இல்லை [ ]

10. சர்க்கரை நோய்க்கான மருத்துவ முறை?

அ. வாய் வழியாக உட்கொள்ளும் மாத்திரைகள் [ ]

ஆ. இன்சுலின் [ ]

ஆம் என்றால்,

i. மருந்துகளின் பட்டியல் . . . . . .

ii. மருந்தின் அளவு . . . . . .

11. பரம்பரையாக சர்க்கரை நோய் உள்ளதா?

அ. ஆம் [ ]

ஆ. இல்லை [ ]

தாங்கள் சர்க்கரை நோயை கட்டுப்படுத்த ஏதேனும் மூலிகை மருந்தினை உபயோகிக்கிறீர்களா?

அ. ஆம் [ ]

ஆ. இல்லை [ ]

12. தாங்கள் தாழ்சர்க்கரை நிலையை அடைந்துள்ளீர்களா?

அ. ஆம் [ ]

ஆ. இல்லை [ ]

ஆம் என்றால் விவரம் _____

13. தாங்கள் எப்பொழுதாவது மிகவும் தாழ்சர்க்கரை நிலையை அடைந்துள்ளீர்களா?

அ. ஆம் [ ]

ஆ. இல்லை [ ]

ஆம் என்றால் விவரம் _____

i. வீட்டு பராமரிப்பு முறைகள்

ii. சர்க்கரையின் அளவை கண்டறிதல்

iii. எப்பொழுதாவது சர்க்கரையின் அளவை கண்டறிதல்

பகுதி-ஆ
பிரிவு-அ

தாழ்சர்க்கரை நிலை

1. தாழ்சர்க்கரை நிலை என்றால் என்ன? இரத்தத்தில் சர்க்கரையின் அளவு
   அ. 70 மில்லிகிராம் / டெசிலிட்டரைவிடக் குறைவான நிலை [ ]
   ஆ. 70-110 மில்லி கிராம் / டெசிலிட்டர் [ ]
   இ. 110-150 மில்லி கிராம் / டெசிலிட்டர் [ ]
   ஈ. 150 மில்லி கிராம் / டெசிலிட்டரைவிட அதிகமான நிலை [ ]

2. வெறும் வயிற்றில் இருக்கும்போது இரத்தத்தில் சர்க்கரையின் அளவு என்ன
   அ. 70 மில்லிகிராம் / டெசிலிட்டரைவிடக் குறைவான நிலை [ ]
   ஆ. 70-110 மில்லி கிராம் / டெசிலிட்டர் [ ]
   இ. 110-150 மில்லி கிராம் / டெசிலிட்டர் [ ]
   ஈ. 150 மில்லி கிராம் / டெசிலிட்டர் மற்றும் 300 மில்லிகிராம் / டெசிலிட்டருக்கும் இடைநிலைக்கான நிலை [ ]

3. தாழ்சர்க்கரை நிலை உண்டாகக் காரணம் என்ன?
   அ. சரியான நேரத்தில் உணவு உண்ணாமை [ ]
   ஆ. திட்டமிடாத உடற்பயிற்சி [ ]
   இ. அளவுக்கதிகமாக மது அருந்துதல் [ ]
   ஈ. சர்க்கரை அதிகமாக உள்ள சிற்றுண்டியை உண்ணுதல் [ ]

4. தாங்கள் தாழ்சர்க்கரை நிலையை எவ்வளவு கால இடைவெளியில் அடைந்துள்ளீர்கள்?
   அ. உணவு உட்கொள்ளுதலை தவிர்த்தல் [ ]
   ஆ. பயிற்சி செய்யும் பொழுது [ ]
   இ. காலை நேரத்தில் [ ]
   ஈ. இரவு நேரத்தில் [ ]

5. சர்க்கரை நோயில் தாழ்சர்க்கரை நிலை ஏற்படுவதற்கான ஆபத்து காரணி எது?
   அ. அளவுக்கதிகமான வலிமை உள்ள சர்க்கரை நோயைக் கட்டுப்படுத்தும் மருந்துகளை உட்கொள்ளுதல் [ ]
   ஆ. அளவுக்கு குறைவான இன்சுலின் உபயோகித்தல் [ ]
   இ. அதிகமான நீராகாரம் அருந்துதல் [ ]
   ஈ. அதிகமான சர்க்கரை உள்ள சிற்றுண்டியை உட்கொள்ளுதல் [ ]

6. தாழ்சர்க்கரை நிலை ஏற்படுவதற்குமுன் உண்டாகும் அறிகுறிகள் யாவை?

அ. அடிக்கடி தாகம் ஏற்படுதல், அடிக்கடி சிறுநீர் கழித்தல் மற்றும் அடிக்கடி தண்ணீர் அருந்துதல் [ ]

ஆ. அதிகமாக வியர்த்தல், படபடப்பு மற்றும் உடல் நடுக்கம் [ ]

இ. உடல் வலி, மூச்சுத்திணறல் மற்றும் வயிற்று வலி [ ]

ஈ. குறைவான நாடித்துடிப்பு, தலைசுற்றல் மற்றும் வாந்தி எடுத்தல் [ ]

7. இரவு நேரத்தில் ஏற்படும் தாழ்சர்க்கரை நிலைக்கான அறிகுறிகள் எது?

அ. உடல் வலி [ ]

ஆ. மனநிலை எரிச்சல் [ ]

இ. நித்திரையின்மை [ ]

ஈ. ஈரம் மிகுந்த கழுத்துப்பகுதி [ ]

8. தாழ்சர்க்கரை நிலையில் ஏற்படும் பின்விளைவு என்ன?

அ. உணர்வு இழத்தல் [ ]

ஆ. நீர் போக்கு [ ]

இ. மூச்சுத் திணறல் [ ]

ஈ. இரைப்பை குடலிலிருந்து இரத்தம் கசிதல் [ ]

பிரிவு-ஆ

9. லேசான மற்றும் மிதமான தாழ்சர்க்கரை நிலையை சரிசெய்ய எந்தவிதமான சிகிச்சை அளிக்கப்பட வேண்டும்?

அ. 15 கிராம் சர்க்கரை உட்கொள்ளுதல் [ ]

ஆ. 20 கிராம் சர்க்கரை உட்கொள்ளுதல் [ ]

இ. 25 கிராம் சர்க்கரை உட்கொள்ளுதல் [ ]

ஈ. 30 கிராம் சர்க்கரை உட்கொள்ளுதல் [ ]

10. தீவிரமான தாழ்சர்க்கரை நிலையை சரிசெய்ய எந்தவிதமான சிகிச்சை அளிக்கப்பட வேண்டும்?

அ. 10 கிராம் சர்க்கரை எடுத்துக்கொள்ளுதல் [ ]

ஆ. 20 கிராம் சர்க்கரை எடுத்துக்கொள்ளுதல் [ ]

இ. 30 கிராம் சர்க்கரை எடுத்துக்கொள்ளுதல் [ ]

ஈ. 40 கிராம் சர்க்கரை எடுத்துக்கொள்ளுதல் [ ]

11. விரைவாக செயல்டும் குளுக்கோஸ் நிறைந்துள்ள பொருட்கள் இவை எவற்றில் அடங்கியுள்ளது?

அ. 3 தேக்கரண்டி சர்க்கரை தண்ணீரில் கலந்து [ ]

ஆ. உப்பு கரைசல் நீர் பருகுதல் [ ]

இ. 2 டம்ளர் தண்ணீர் பருகுதல் [ ]

ஈ. ஊறுகாய் உட்கொள்வது [ ]

12. கீழ்கண்ட எந்தமுறையில் தாழ்சர்க்கரை நிலைக்கு சுயசிகிச்சை அளிக்கப்பட வேண்டும்?

அ. 3 தேக்கரண்டி சர்க்கரை உட்கொள்ளுதல் [ ]

ஆ. கொய்யா மற்றும் பப்பாளி போன்ற பழவகைகளை சாப்பிடுவதற்கு இடையில் உட்கொள்ளுதல் [ ]

இ. 500 மில்லி தண்ணீர் அருந்துதல் [ ]

ஈ. வெண்ணெய் மற்றும் பாலாடைக்கட்டி உட்கொள்ளுதல் [ ]

13. தாழ்சர்க்கரை நிலைக்கான சிகிச்சைக்குப்பிறகு மறுபடியும் இரத்தத்தில் சர்க்கரையின் அளவை எப்பொழுது மறுபரிசோதனை செய்ய வேண்டும்

அ. சர்க்கரை உட்கொண்ட அடுத்த 5 நிமிடத்தில் [ ]

ஆ. சர்க்கரை உட்கொண்ட அடுத்த 10 நிமிடத்தில் [ ]

இ. சர்க்கரை உட்கொண்ட அடுத்த 15 நிமிடத்தில் [ ]

ஈ. சர்க்கரை உட்கொண்ட அடுத்த 20 நிமிடத்தில் [ ]

பிரிவு-இ

தாழ்சர்க்கரை நிலையை தடுக்கும் முறைகள்

14. தாங்கள் பயணம் மேற்கொள்ளும்போது தாழ்சர்க்கரை நிலையை தவிர்க்க முன்னெச்சரிக்கையாக செய்ய வேண்டியவை எவை?

அ. சர்க்கரை மற்றும் சர்க்கரை மிட்டாயை எடுத்துச்செல்லுதல் [ ]

ஆ. 1 டம்ளர் பால் எடுத்துச் செல்லுதல் [ ]

இ. தண்ணீர் எடுத்துச் செல்லுதல் [ ]

ஈ. கொய்யா மற்றும் பிஸ்கட் எடுத்துச் செல்லுதல் [ ]

15. தாழ்சர்க்கரை நிலை நோயாளிகளுக்கு எடைதூக்கும் உடற்பயிற்சியில் எந்தவிதமான பின்விளைவு ஏற்படும்?

அ. இரத்தத்தில் சர்க்கரையின் அளவு சீராக இருத்தல் [ ]

ஆ. இரத்தத்தில் சர்க்கரையின் அளவு குறைவாக இருத்தல் [ ]

இ. இரத்தத்தில் கொழுப்பின் அளவு அதிகமாக இருத்தல் [ ]

ஈ. இரத்தத்தில் சர்க்கரையின் அளவு அதிகமாக இருத்தல் [ ]

16. தாழ்சர்க்கரை நிலையை சிறந்த முறையில் எவ்வாறு தடுக்கலாம்?

அ. பட்டினி இருப்பதை தவிர்க்க வேண்டும் [ ]

ஆ. சாப்பாட்டிற்கு இடையில் திண்பண்டங்கள் உட்கொள்வதை தவிர்த்தல் [ ]

இ. உடற்பயிற்சிக்கு இடையே திண்பண்டங்களை உட்கொள்வதை தவிர்த்தல் [ ]

ஈ. தண்ணீர் குடிப்பதை தடுத்தல் [ ]

17. இரவு நேரத்தில் ஏற்படும் தாழ்சர்க்கரை நிலையை எவ்வாறு சிறந்த முறையில் தடுக்கலாம்?

அ. படுக்கைக்கு செல்லும் முன் அதிகமான சர்க்கரை உள்ள உணவு பொருட்களை உண்ணுதல் [ ]

ஆ. படுக்கைக்கு செல்லும் முன் பட்டினி இருத்தல் [ ]

இ. அதிகமாக தண்ணீர் அருந்துதல் [ ]

ஈ. படுக்கைக்கு செல்லும் முன் பால் அருந்துதல் [ ]

18. எவ்வகையான சிறந்த வழிமுறையின் மூலம் மீண்டும் தாழ்சர்க்கரை நிலை வராமல் தடுக்கலாம்?

அ. நாள் முழுவதும் பட்டினியோடு இருக்கும் நபர் [ ]

ஆ. அதிகமாக சர்க்கரையின் அளவு உள்ள உணவுப்பொருட்களை உண்ணும் நபர்[ ]

இ. வழக்கமான நேரத்தில் உணவு உட்கொள்ளும் நபர் [ ]

ஈ. உடற்பயிற்சி மேற்கொள்ளும் நபர் [ ]

19. நீரழிவு நோயாளிகள் எவ்வளவு நேரம் உடற்பயிற்சி செய்ய வேண்டும்?

அ. 15 நிமிடங்கள் மட்டும் [ ]

ஆ. 30 நிமிடங்கள் முதல் 1 மணி நேரம் வரை [ ]

இ. 1 மணி நேரம் முதல் 1.30 மணி நேரம் வரை [ ]

ஈ. தொடர்ந்து 2 மணி நேரம் [ ]

20. சர்க்கரை நோயாளிகள் உடற்பயிற்சி செய்யும்போது ஏற்படும் தாழ்சர்க்கரை நிலையை தடுக்க செய்ய வேண்டிய பாதுகாப்பான உடற்பயிற்சி எது?

அ. நடைபயிற்சி [ ]

ஆ. பழுதூக்கும் பயிற்சி [ ]

இ. ஓடுதல் [ ]

ஈ. மிதமாக ஓடுதல் [ ]

BOOKLET

ON

HYPOGLYCEMIC AWARENESS AND MANAGEMENT

INTRODUCTION

- Hypoglycemia is without any doubt the most important, common and sometimes dreaded diabetic complication. Especially in those patients treated with insulin and struggling for a tight diabetic control.

DEFINITION

- Hypoglycemia can be defined biochemically, as blood glucose level less than 70-mg/ dl.

CLASSIFICATION OF HYPOGLYCEMIA

Mild(below 70mg/dl)

- During hypoglycemic episodes there are neurogenic symptoms like: excessive perspiration, shaking, heart palpitations,etcIndividual is able to self-treat.

Moderate(below 60mg/dl)

- Autonomic and neuroglycopenic symptomsand as a consequence that our brain does not function perfectly, like: blurred or double vision, lackof concentration,

mental confusion and hunger. Individual is able to self-treat.

Severe(below 50mg/dl)

- During thesevere hypoglycemic episode you may experience loss of consciousness,have convulsions. Need hospitalization.

CAUSES OF HYPOGLYCEMIA

The main causes are:

- Irregular meal time or amount consumed.
- Excessive exercise, without being planned.
- Medication Dosage errors, or variation in insulin absorption.
- Excessive alcohol consumption.
- No obvious cause.

RISK FACTORS OF HYPOGLYCEMIA

- Anxiety
- Accident risk
- Performance impairment
- Reduced spatial memory
- Diminished symptoms of hypoglycemia
- Weight gain
- Excessive Glycemic Therapy

SYMPTOMS

- Cool Sweat
- Nervousness
- Tiredness
- Dizziness
- Hunger
- Double or Blurred vision
- Palpitations
- Impaired speech
- Shaking
- Itching
- Mental Confusion
- Severe headache
- Insomnia
- Yawning
- Behavioral alterations
- Coma

SYMPTOMS OF NIGHT TIME HYPOGLYCEMIA

- Waking with a headache
- Experiencing seemingly unprovoked sleep disturbance
- Feeling unusually tired
- Waking with damp bed clothes and sheets from sweating

❖ Having a clammy neck can be a particular indication of night time hypoglycemia.

HYPOGLYCEMIC AWARENESS AND MANAGEMENT

Hypoglycemia Checklist

- ✓ RECOGNIZE hypoglycemia and CONFIRM
- ✓ DIFFERENTIATE mild-moderate and severe
- ✓ TREAT hypoglycemia but AVOID overtreatment
- ✓ AVOID hypoglycemia in the future

1. **Mild to moderate hypoglycemia** should be treated by **oral ingestion of 15g** carbohydrate; glucose or sucrose tablets/solutions are preferable to orange juice and glucose gels.Patients should **retest** blood sugar **in 15 minutes** and **retreat** with another 15 g of carbohydrates if hypoglycemia persists.

    - Blood sugar should be retested in 15 minutes, and then retreated with a further 15 g of glucose if blood glucose level remains less than 70 mg/dl. Limit intake to 15 grams of carbohydrates. The goal is to bring the blood glucose back to the target range.Treatment may need to be repeated at about 15 minutes interval (based on continued low test results

or poor symptom response.) Each treatment dose should be 15g of carbohydrates.

- **Some quick-acting forms of glucose include:**
  - ✓ 4 oz. fruit juice
  - ✓ 3 or 4 glucose tablets
  - ✓ 1 tube of glucose gel
  - ✓ 4-6 small hard candies
  - ✓ 1-2 tablespoons of honey
  - ✓ 3 teaspoons of table sugar(dissolved in water)

2. **Severe hypoglycemia** in a **conscious person** should be treated by **oral** ingestion of **20 g** of carbohydrate, preferable as glucose tablets or equivalent.

3. **Severe hypoglycemia i**n an **unconscious individual:**
   - Caregivers or support persons should call for emergency services and the episode should be discussed with the diabetes healthcare team as soon as possible.
   - Once the **hypoglycemia has been reversed**, and patient gains consciousness he/she should be given the the**usual meal or snack that is due at that time of the day** to prevent repeated hypoglycemia.If a meal is > 1 hour away, a snack

(including 15 g of carbohydrate and protein source) should be consumed.

- Patients receiving anti hyperglycemic agents that may cause hypoglycemia should be counseled about strategies for prevention, recognition and treatment of **hypoglycemia.**

PREVENTION OF HYPOGLYCEMIA

If you have diabetes, the ways you can prevent hypoglycemia include:

- Follow your meal plan.
- Eat at least three evenly spaced meals each day with between-meal snacks.
- Plan your meals not more than 4 to 5 hours apart.
- Exercise 30 minutes to 1 hour. Check your blood sugarlevel before and after exercise.
- While travelling carry a sugar candy or some sugar to treat hypoglycemia immediately.
- Double-check your insulin or dose of diabetes medicine before taking it.
- Know when your medicine is at its peak level.
- Test your blood sugar level as often as directed by your doctor.

- Best way to prevent hypoglycemiaisavoid starving more than 4-5 hours .
- Carry an identification card that says you have diabetes.
- After exercising check your blood glucose level and it should be around 100 mg/dl.If it's below 70 mg/dleat a snack that will increase your blood sugar level to a safe pre-exercise range. A 15 gram glucose containing snack will help the best.
- If you exercise for extended periods of time, check your blood sugar levels regularly at different times during the exercise.
- Check your blood glucose level and if it is 250 mg/dl or higher you shouldn't start exercising.

Preventing night time hypoglycemia

If you are having nocturnal hypoglycemia, they can usually be prevented in one of two ways;

- By decreasing your basal regular regimen insulin
- By having an extra snack before bed.

COMPLICATIONS

- If you ignore the symptoms of hypoglycemia too long, you may lose consciousness. That's because your brain needs glucose to function properly.

- Recognize the signs and symptoms of hypoglycemia early because untreated hypoglycemia can lead to:
  - Seizure
  - Impaired cognitive function
  - Brain damage
  - Loss of consciousness
  - Death

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தாழ்சர்க்கரை நிலைக்கான விழிப்புணர்வு மற்றும் மேலான்மை

முன்னுரை:

தாழ்சர்க்கரை நிலை என்பது எந்தவித சந்தேகமுமில்லாமல் மிக முக்கியமாக, பொதுவாக சில நேரங்களில் நீரழிவு சிக்கல் நோயினால் ஏற்படக்கூடிய தீமையாகும். எனவே குறிப்பாக நீரழிவு நோயாளி இன்சுலின் கட்டுப்பாட்டில் இருக்க வேண்டும்.

வரையறை:

தாழ் சர்க்கரைநிலை என்பது உயிர் வேதியலில் இவ்விதமாக வரையறுக்கப்பட்டுள்ளது, இரத்தத்தில் சர்க்கரையின் அளவு 70மில்லிகிராம் / டெசிலிட்டரைவிடக் குறைவாக இருந்தால் தாழ்சர்க்கரை நிலை எனப்படும்.

தாழ்சர்க்கரை நிலையின் வகைகள்:

லேசான தாழ்சர்க்கரை நிலை (70மில்லிகிராம் / டெசிலிட்டரைவிட குறைவான நிலை)

இரத்தத்தில் தாழ்சர்க்கரை நிலை ஏற்படும்போது நரம்பு மண்டலத்தில் ஏற்படும் அறிகுறிகள்) அதிகமாக வியர்த்தல், நடுக்கம், (அசைவுகள்) இதயபடபடப்பு, மற்றும்பல அறிகுறிகள்.

இந்த வகை லேசான தாழ்சர்க்கரை நிலையை தனிப்பட்ட நபரே சுயசிகிச்சை செய்துகொள்ள முடியும்.

தீவிரமான தாழ்சர்க்கரை நிலை (50மில்லிகிராம் / டெசிலிட்டரைவிட குறைவான நிலை)

இந்த தீவிரமான தாழ்சர்க்கரைநிலை நிகழ்வின் போது ஏற்படும் விளைவுகள், சுய உணர்வை இழத்தல், வலிப்பு மற்றும் மனக்குழப்பம். இந்த தீவிரமான தாழ்சர்க்கரை நிலை நோயாளியை மருத்துவமனையில் அனுமதிக்கப்பட வேண்டும்.

தாழ்சர்க்கரை ஏற்படுவதற்கான முக்கிய காரணங்கள்

- ஒழுங்கற்ற நேரத்தில் உணவு உண்ணுதல்.
- திட்டமிடாமல் உடற்பயிற்சி செய்தல்.
- மருந்து அளவுகளில் ஏற்படும் பிழைகள் அல்லது இன்சுலின் உறிஞ்சுதலின் மாறுபாடு.
- அளவுக்கதிகமாக மருந்து அருந்துதல்.
- வெளிப்படையான காரணங்கள் எதுவும் இல்லை.

இரத்தத்தில் தாழ்சர்க்கரை நிலை ஏற்பட ஆபத்து காரணிகள்

- கவலை
- விபத்து அபாயம்
- செயல்திறன் பலவீனம்
- நினைவாற்றல் குறைதல்
- இரத்த சர்க்கரை குறைவதால் ஏற்படும் அறிகுறிகள்.
- எடை அதிகரிப்பு

அறிகுறிகள்

- குளிர்ந்த வியர்வை
- நரம்புத் தளர்ச்சி
- சோர்வு
- பசி
- இரட்டை அல்லது மங்கலான பார்வை
- படபடப்பு
- பேச்சு பழுதடைதல்
- நடுக்கம்
- அரிப்பு
- மனக்குழப்பம்

- கடுமையான தலைவலி
- தூக்கமின்மை
- கொட்டாவி
- சுய நினைவு இன்மை
- நடத்தையில் மாற்றம்

இரவு நேரத்தில் ஏற்படும் தாழ்சர்க்கரையின் அறிகுறிகள்:

- எழுந்ததும் தலைவலி ஏற்படுதல்
- இரவு நேரத்தில் தூக்கமின்மையால் அவதிப்படுதல்
- வழக்கத்திற்கு மாறாக சோர்வு
- எழுந்திருக்கும் பொழுது படுக்கை விரிப்பு ஈரமாக உள்ள நிலை
- இரவு நேரத்தில் கழுத்துப் பகுதியில் மிகவும் ஈரம் படிந்த நிலை.

தாழ்சர்க்கரை நிலையின் விழிப்புணர்வு மற்றும் மேலாண்மை

தாழ்நிலை சர்க்கரை நிலையை சரிபார்த்தல் பட்டியல்

- தாழ்நிலை சர்க்கரை குறைவு நிலையை உறுதிபடுத்துதல்
- லேசான, மிதமான, தீவிரமான வகையை வேறுபடுத்துதல்.

- தாழ்சர்க்கரை நிலைக்கான சிகிச்சை ஆனால், தவிர்க்க வேண்டிய அதிகப்படியான சிகிச்சை.
- எதிர்காலத்தில் தாழ்சர்க்கரை நிலையை தவிர்க்க.

1. இரத்த தாழ்சர்க்கரை நிலை லேசானதிலிருந்து மிதமான நிலைக்கான சிகிச்சை வாய்வழியாக 15 கிராம் கார்போஹைட்ரேட் குளுகோஸ் அல்லது அல்லது சுக்ரோஸ் மாத்திரைகள் அல்லது அதற்கு மாறான தீர்வுகள், ஆரஞ்சு சாறு மற்றும் குளுகோஸ் ஜெல். நோயாளிகள் இரத்த சர்க்கரையின் அளவை மறுபரிசோதனை 15 நிமிடத்திற்குள் செய்ய வேண்டும். மீண்டும் அதே நிலை தொடர்ந்தால் பிறகு மறுபடியும் மீண்டும் 15 கிராம் கார்போஹைட்ரேட் உட்கொள்ளவேண்டும்.

விரைவாக செயல்படும் குளுகோஸ் நிறைந்துள்ள பொருட்கள்

- நான்கு அவுன்ஸ் பழச்சாறு
- ஒரு குளுகோஸ் ஜெல்
- நான்கு முதல் ஆறு சிறிய மிட்டாய்கள்
- ஒன்று முதல் இரன்டு தேக்கரண்டி தேன்
- ஆறு அவுன்ஸ் வழக்கமாக (உணவில் இல்லாத) சோடா (சுமார் அரைமூடி)

- மூன்று தேக்கரண்டி சர்க்கரை (தண்ணீரில் கரைத்தது)

2. தீவிரமான தாழ்சர்க்கரை நிலையில் சுயநினைவுள்ள நபருக்கு உடனடியாக சிகிச்சை வாய்வழியாக 30கிராம் கார்போஹைட்ரேட் மற்றும் குளுகோஸ் மாத்திரைகள் கொடுக்க வேண்டும்.

2 (a). சுயநினைவற்ற தனி நபரின் கடுமையான தாழ்சர்க்கரை நிலை:

கவனிப்பவர்கள் (அல்லது) ஆதரவு நபர்கள் கண்டிப்பாக அவசர சேவைக்கு அழைத்துச் செல்ல வேண்டும் மற்றும் அச்சமயத்தில் விரைவில் நீரழிவு சுகாதார குழுவிடம் விவாதிக்கப்பட வேண்டும்.

தாழ்சர்க்கரை நிலையில் இருந்து மீண்டு வந்த நபர் சரியான நேரத்தில் எப்பொழுதும் வழக்கமாக உட்கொள்ளப்பட வேண்டிய உணவு அல்லது சிற்றுண்டியை உட்கொள்ள வேண்டும். அதனால் அடிக்கடி ஏற்படக்கூடிய தாழ்சர்க்கரை நிலையை தடுக்க முடியும்.

உட்கொள்ள வேண்டிய உணவு

உணவு உட்கொள்ள வேண்டியநேரம் 1மணி நேரம் தவறினால், சிற்றுண்டியை உட்கொள்ள வேண்டும் (15கிராம் கர்போஹைட்ரேட் மற்றும் புரதச்சத்து அடங்கியிருக்க வேண்டும்)

நோயாளி அதிகப்படியான சர்க்கரை நிலையை தடுக்கும் மருந்து வகைகளை எடுத்துக் கொண்டிருந்தால் அதன் மூலம் தாழ்சர்க்கரை நிலை ஏற்படுவதற்கான முக்கிய காரணங்களை கலந்தாலோசித்து அதற்கான தடுப்புமுறைகள் மற்றும் சிகிச்சைகள் எடுத்துக் கொள்ளப்பட வேண்டும்.

தாழ்சர்க்கரை நிலையை தடுக்கும் முறைகள்:

நீங்கள் நீரழிவு நோயாளியாக இருந்தால் தாழ்சர்க்கரை நிலையை தடுக்கும் வழிமுறைகள்:

- உங்கள் உணவு திட்டத்தைப் பின்பற்றவும்
- மூன்று மணி நேர இடைவெளியில் உணவு மற்றும் சிற்றுண்டிகளை ஒவ்வொரு நாளும் சாப்பிட வேண்டும்.
- திட்டமிட்டபடி உணவை உட்கொள்ள வேண்டும் மாறாக 4-5 மணி நேரம் தவிர்த்து உணவு உட்கொள்ள கூடாது.

- உணவு உட்கொண்ட 1மணி நேரம் கழித்து தினந்தோறும் 30 நிமிடம் உடற்பயிற்சி எடுத்துக் கொள்ள வேண்டும்.
- உடற்பயிற்சிக்கு முன்பும் பின்பும் இரத்த சர்க்கரையின் அளவை (பரிசோதித்தல்) பரிசோதனை செய்து கொள்ள வேண்டும்.
- நீங்கள் பயணம் செய்யும்போது தாழ்சர்க்கரை நிலையை உடனடியாக சரிசெய்ய சர்க்கரை மிட்டாய் அல்லது சர்க்கரை வைத்து இருக்க வேண்டும்.
- நீரழிவு நோய்க்கான மருந்துகளை உட்கொள்வதற்கு முன்பு இருமுறை இன்சுலின் மற்றும் அதன் அளவை பரிசோதனை செய்ய வேண்டும்.
- உங்கள் மருந்து அதன் உச்ச அளவில் இருப்பதை தெரிந்து கொள்ள வேண்டும். அடிக்கடி நீரழிவு இரத்தசர்க்கரை பரிசோதனையை உங்கள் மருத்துவரின் அறிவுரைப்படி செய்து கொள்ள வேண்டும்.
- நீங்கள் நீரழிவு நோயாளியானால் ஒரு அடையாள அட்டையை வைத்திருக்க வேண்டும்.
- உடற்பயிற்சி செய்து முடித்த பின்பு இரத்த சர்க்கரையின் அளவு 100மில்லிகிராம் / டெசிலிட்டர் இருக்க வேண்டும்.

- அச்சமயம் 70மில்லிகிராம் / டெசிலிட்டரைவிடக் குறைவாக இருந்தால் இரத்த சர்க்கரை நிலையை அதிகரிக்க சிற்றுண்டியை உண்ண வேண்டும். 15 கிராம் கார்போஹைட்ரேட் அளவுள்ள சிற்றுண்டியை இரத்த சர்க்கரை நிலையை அதிகரிக்க பயனுள்ளதாக இருக்கும்.
- உடற்பயிற்சி செய்யும் நேரம் அதிகரிக்கும் போது குறிப்பிட்ட கால இடைவெளியில் இரத்த சர்க்கரையின் அளவை பரிசோதனை செய்துகொள்ள வேண்டும்.
- இரத்த சர்க்க்ரையின் அளவு 250மில்லிகிராம் / டெசிலிட்டருக்கும் அதிகமாக இருந்தால் உடற்பயிற்சியை தொடங்கக் (துவங்க) கூடாது.
- அதிகப்படியான உடல்பருமனை குறைக்க வேண்டும்.

இரவு நேரத்தில் ஏற்படும் தாழ்சர்க்கரை நிலையை தடுப்பதற்கான வழிமுறைகள்:-

உங்களுக்கு இரவு நேரங்களில் தாழ்சர்க்கரை நிலை ஏற்பட்டால் அவற்றை தடுப்பதற்கான பொதுவான இரண்டு வழிமுறைகள்:

- குறைந்த அளவு இன்சுலின் எடுத்துக்கொள்ளும் முறை

- இரவு படுக்கைக்குச் செல்லும் முன் கூடுதலான சிற்றுண்டி உட்கொள்ள வேண்டும்.

சிக்கல்கள்:

நீங்கள் நீண்ட நேரம் தாழ்சர்க்கரைக்கான நிலையின் அறிகுறிகளை அலட்சியம் செய்தால் நீங்கள் சுயநினைவை இழக்க நேரிடும்.

ஏனென்றால் உங்கள் மூளை சரியாக வேலை செய்ய குளுகோஸ் தேவைப்படும். ஏனெனில் தாழ்சர்க்கரை நிலைக்கான ஆரம்ப அறிகுறிகளை சிகிச்சை அளிக்காமல் இருந்தால் கீழ்காணும் விளைவுகள் ஏற்பட நேரிடும்;

- வலிப்பு
- பழுதடைந்த புலனுணர்வு செயல்பாடு
- மூளை சேதம்
- உணர்வு இழப்பு
- இறப்பு